



# Rapides Parish Hazard Mitigation Plan Update Public Meeting

December 3, 2015

Alexandria, LA



# Agenda

- Hazard Mitigation Planning Process – SDMI Staff
- Risk Assessment – SDMI Staff
- Update on Previous/Current Mitigation Projects – Rapides OHSEP
- Public Outreach Activities – SDMI Staff/Rapides Parish OHSEP



# Hazard Mitigation

- Protect public safety and prevent loss of life and injury;
- Help accomplish community objectives, such as leveraging capital improvements, infrastructure protection, open space preservation, and economic resiliency;
- Prevent damage to a community's economic, cultural and environmental assets;
- Minimize operational downtime and accelerate recovery of government and the private sector after an event



# Why are we required to have a Hazard Mitigation Plan?

- Disaster Mitigation Act of 2000 (DMA 2000)

*Section 322 of the Act specifically addresses mitigation planning and requires state and local governments to prepare multi-hazard migration plans as a precondition for receiving FEMA mitigation project grants.*

- Meet federal requirements of Title 44 Code of Regulations (CFR) §201.6 for approval and eligibility to apply for FEMA Hazard Mitigation Assistance grant programs.

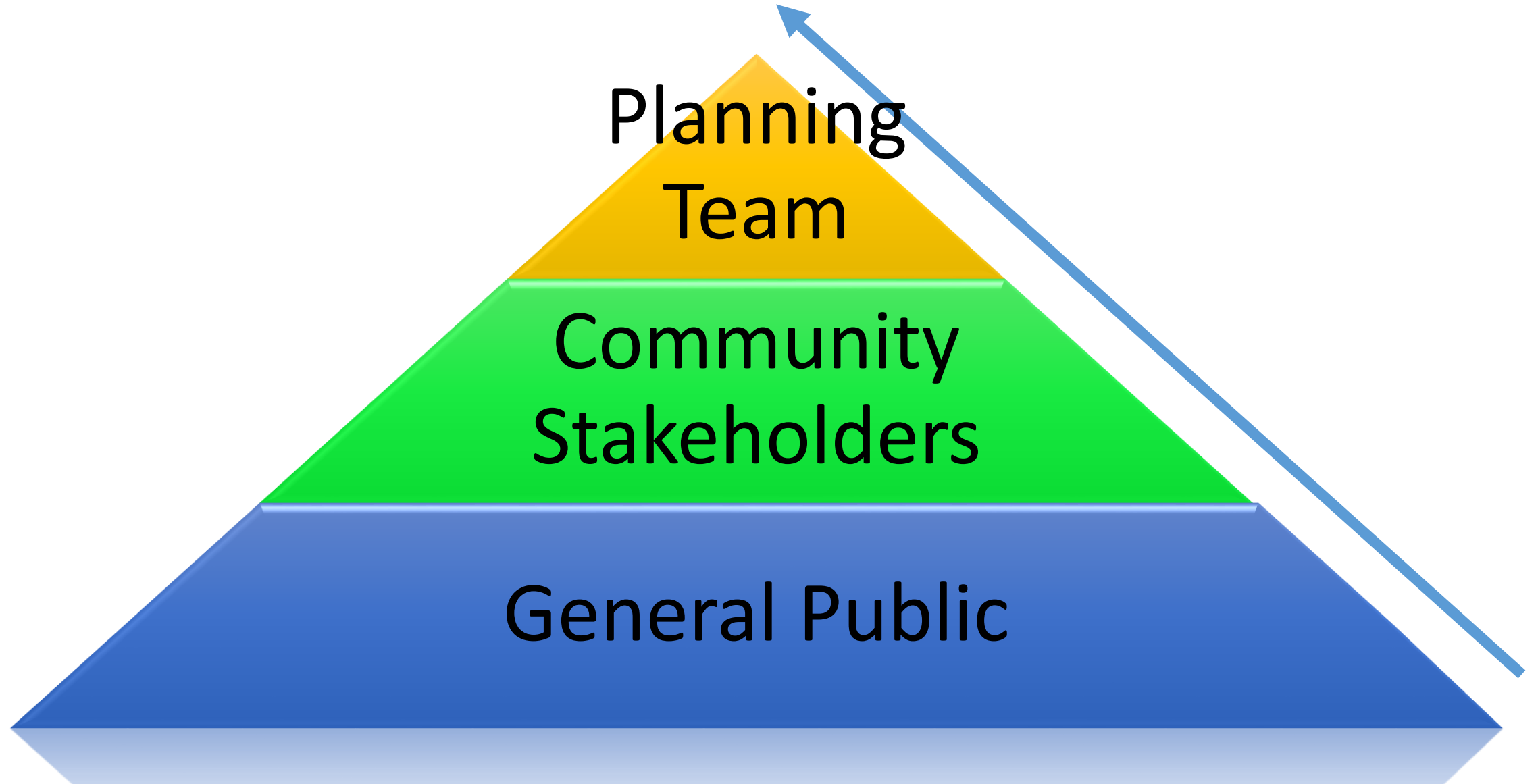


- The approved Rapides Parish Hazard Mitigation Plan will allow for distribution of HM funding following future disasters.





# Collaborative Planning Approach



# Planning Development



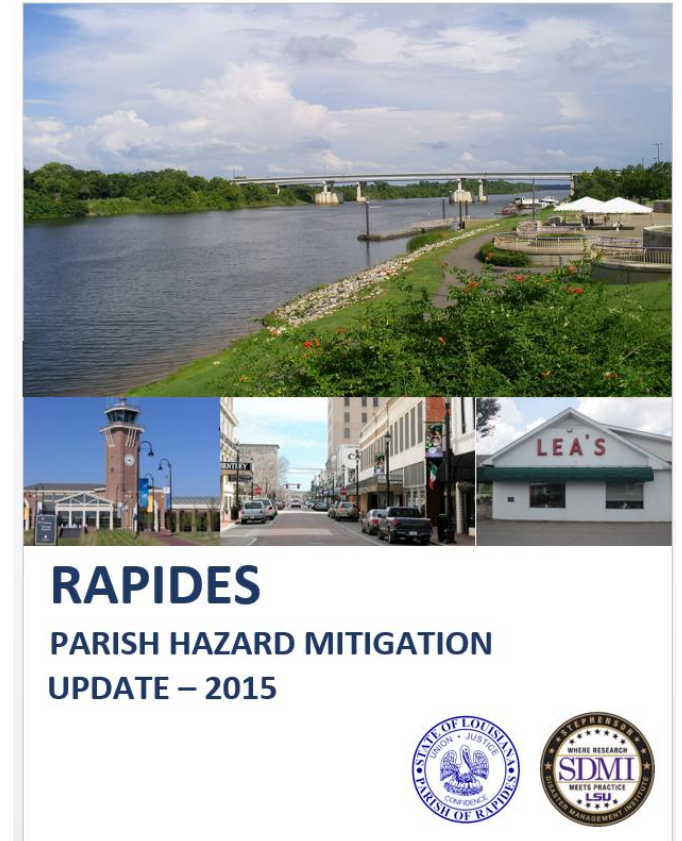
# New Plan Layout

- Section 1: Introduction
  - Updated demographics
  - Economics
  - Update parish/jurisdiction descriptions
- Section 2: Hazard Identification and Parishwide Risk Assessment
- Section 3: Capability Assessment
- Section 4: Mitigation Strategies
  - New actions
  - Action updates
  - Survey results



# New Plan Layout

- Appendix A: Planning Process
- Appendix B: Plan Maintenance
- Appendix C: Parish Essential Facilities
- Appendix D: Plan Adoption
- Appendix E: State Required Worksheets





# Hazard Identification and Risk Assessment

- Based on currently profiled risks
- Any newly identified risks
- Prevalent Hazards
- Previous occurrences
- Probability of future events
- Assets Inventory
- Essential Facilities
- Hazard Impact
- Future Development
- Future Hazard Impacts
- Zoning and Land Use
- Hazard Profiles



# Hazard Identification and Risk Assessment

- Tropical Cyclone
- Flooding
- Thunderstorms/Lightning/High wind/Hail
- Tornadoes
- Winter Storms
- Wildfire
- Extreme Heat
- Drought

*These natural hazards were selected based on an assessment of the overall impact (geographic extent, magnitude, probability, and exacerbating or mitigating conditions) affecting Rapides Parish.*



# Risk Assessment: Hazard Identification

- The plan includes descriptions of the natural hazards that affect the jurisdictions in the planning area.
- A hazards identification should include the
  - locations affected
  - the extent or strength
  - previous occurrences
  - probability of future events



# Risk Assessment: Analyze Risk and Summarize Vulnerability

- Risk analysis involves evaluating vulnerable assets, describing potential impacts, and estimating losses for each hazard.
- This helps the community understand the greatest risks facing the area.
- Methods can include exposure risk analysis, historical analysis and scenario analysis.
- Through the risk analysis the community should be able to verbalize or create problem statements about the identified risks.



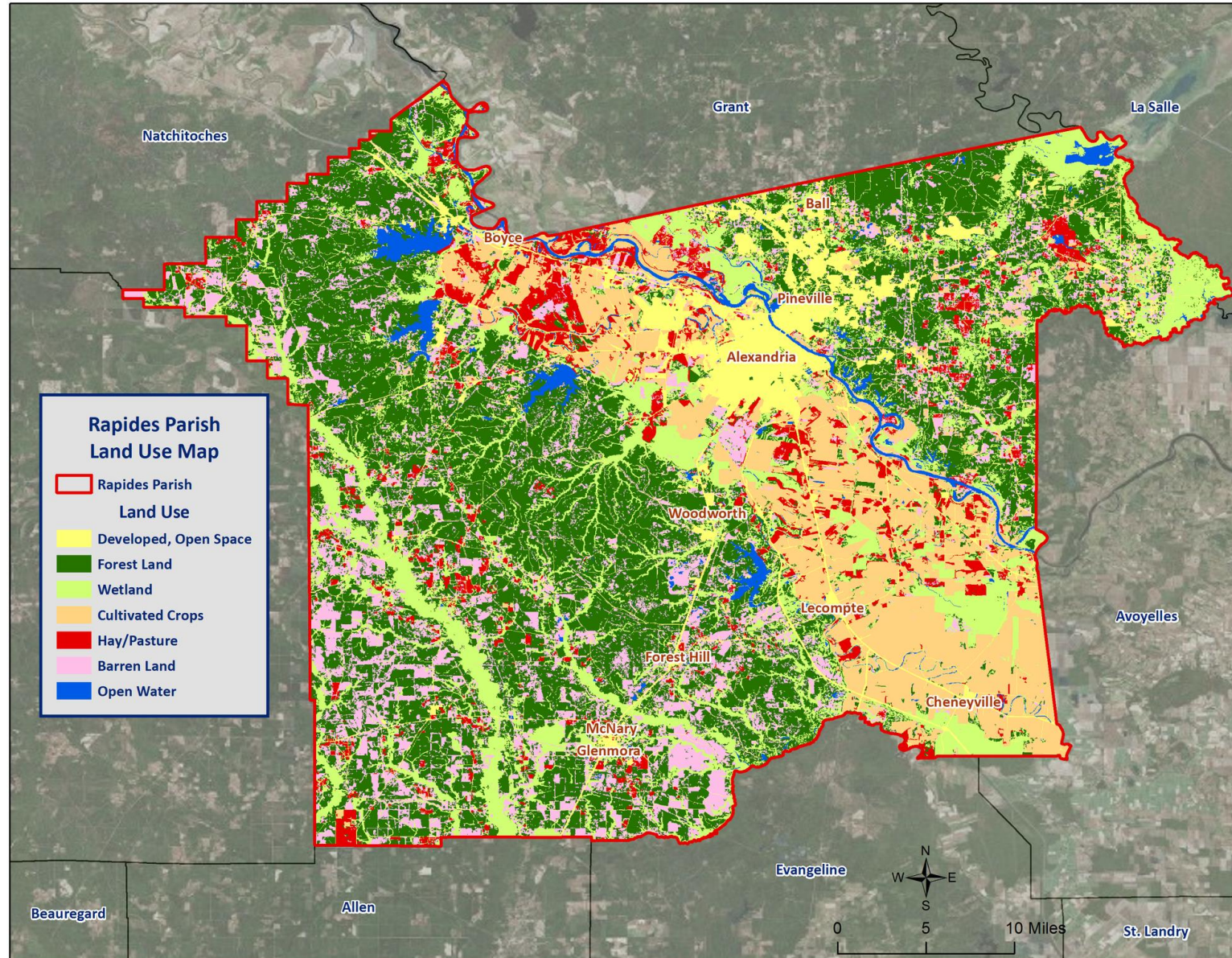


# Risk Assessment: Maps



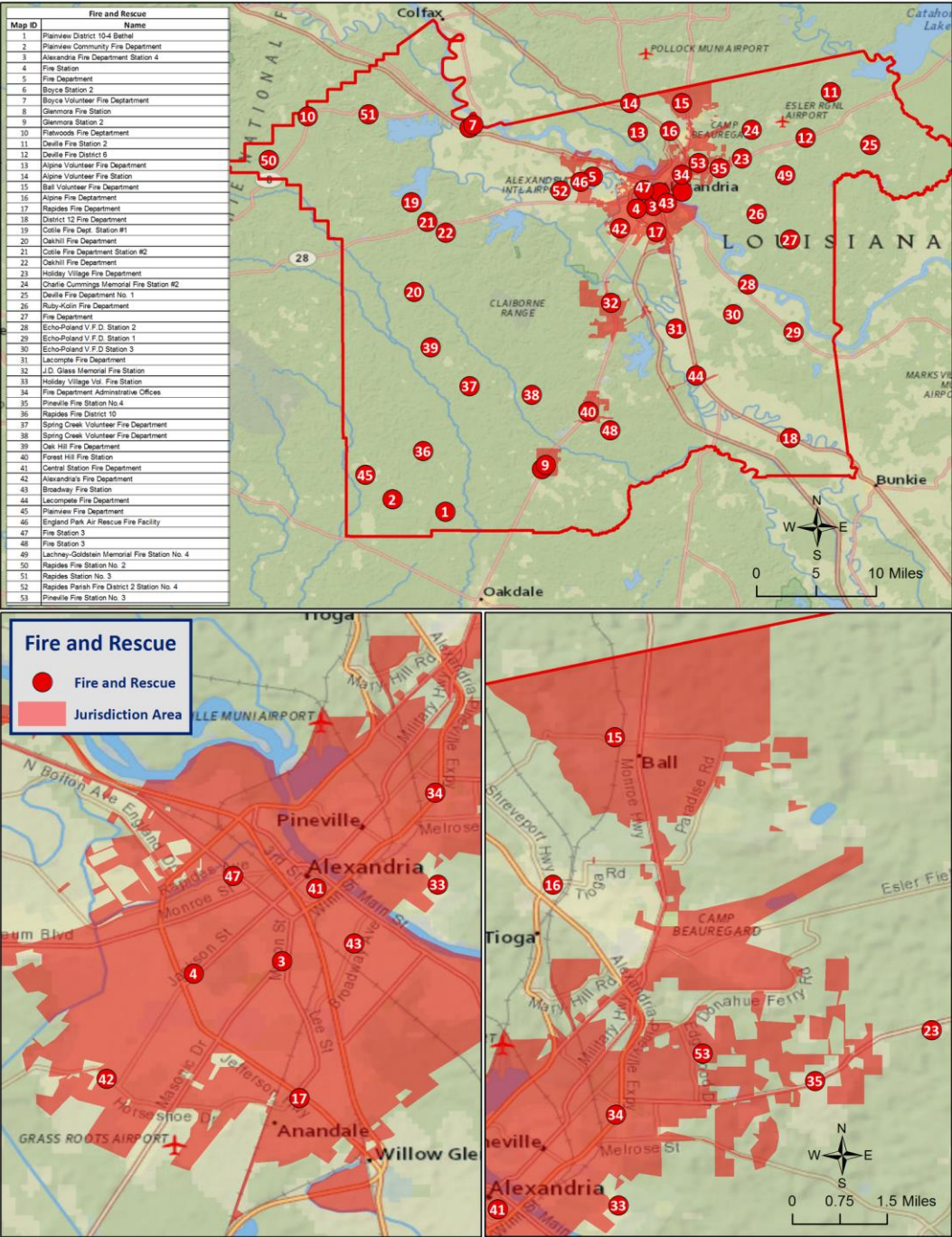


# Land Use in Rapides Parish

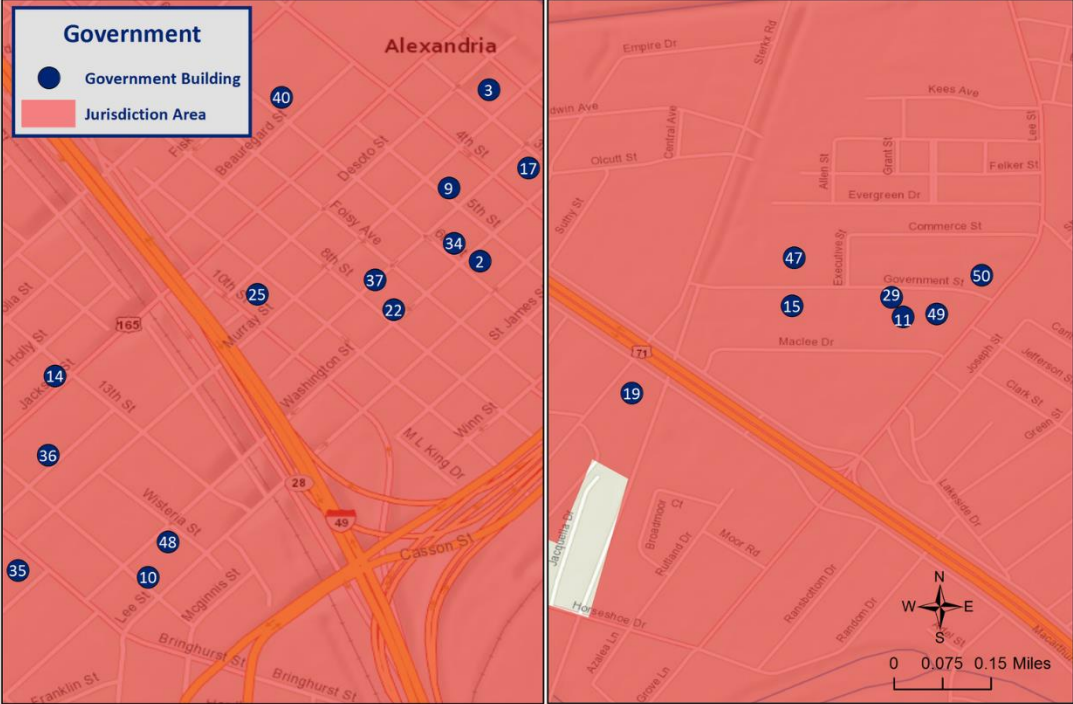
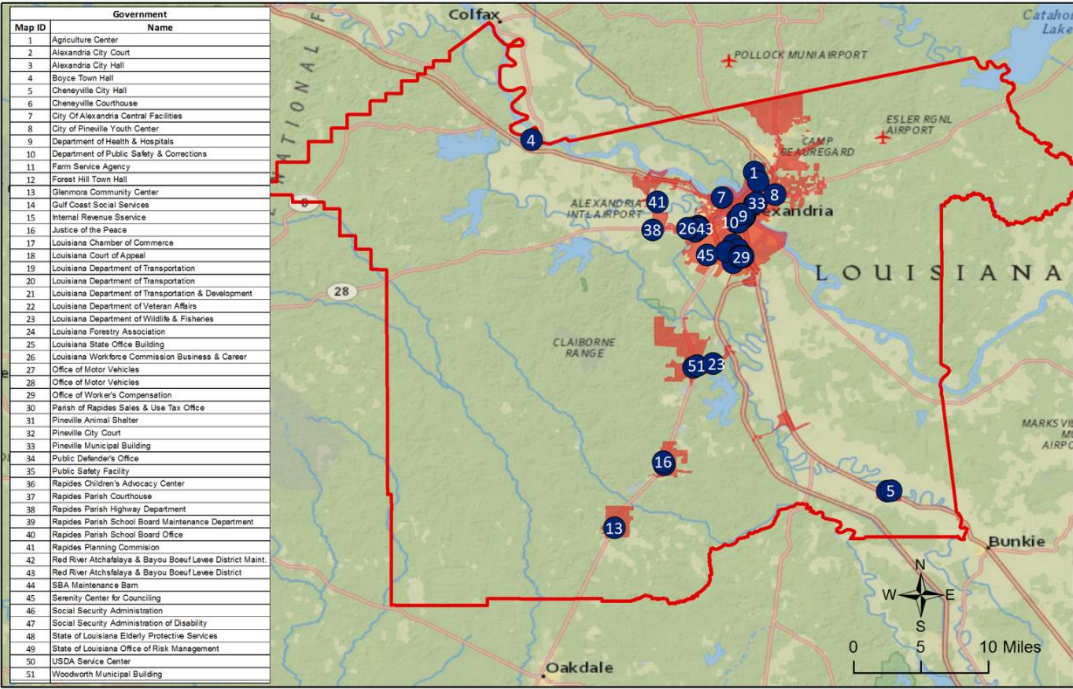




# Critical Facilities – Fire Stations

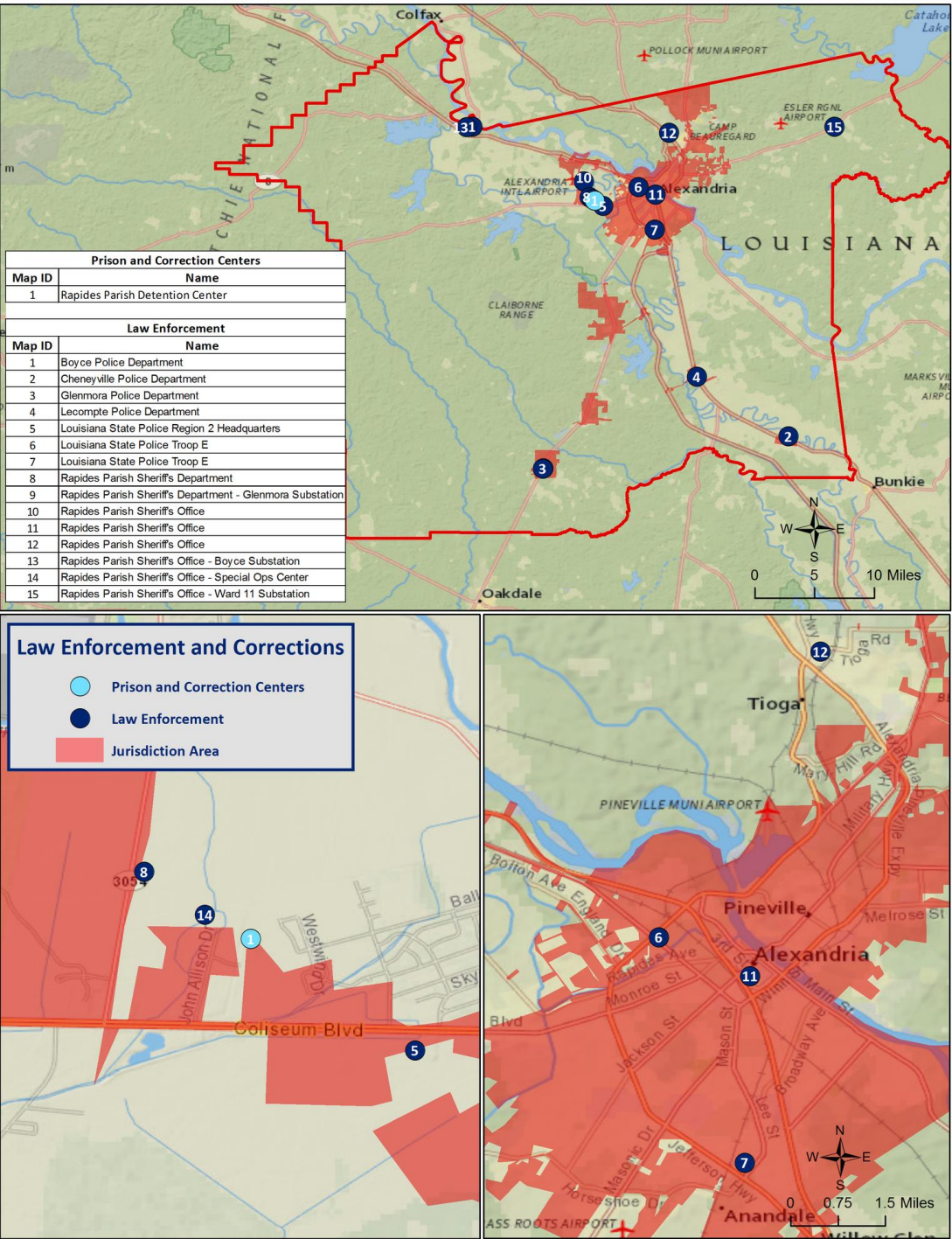


# Critical Facilities – Government Buildings

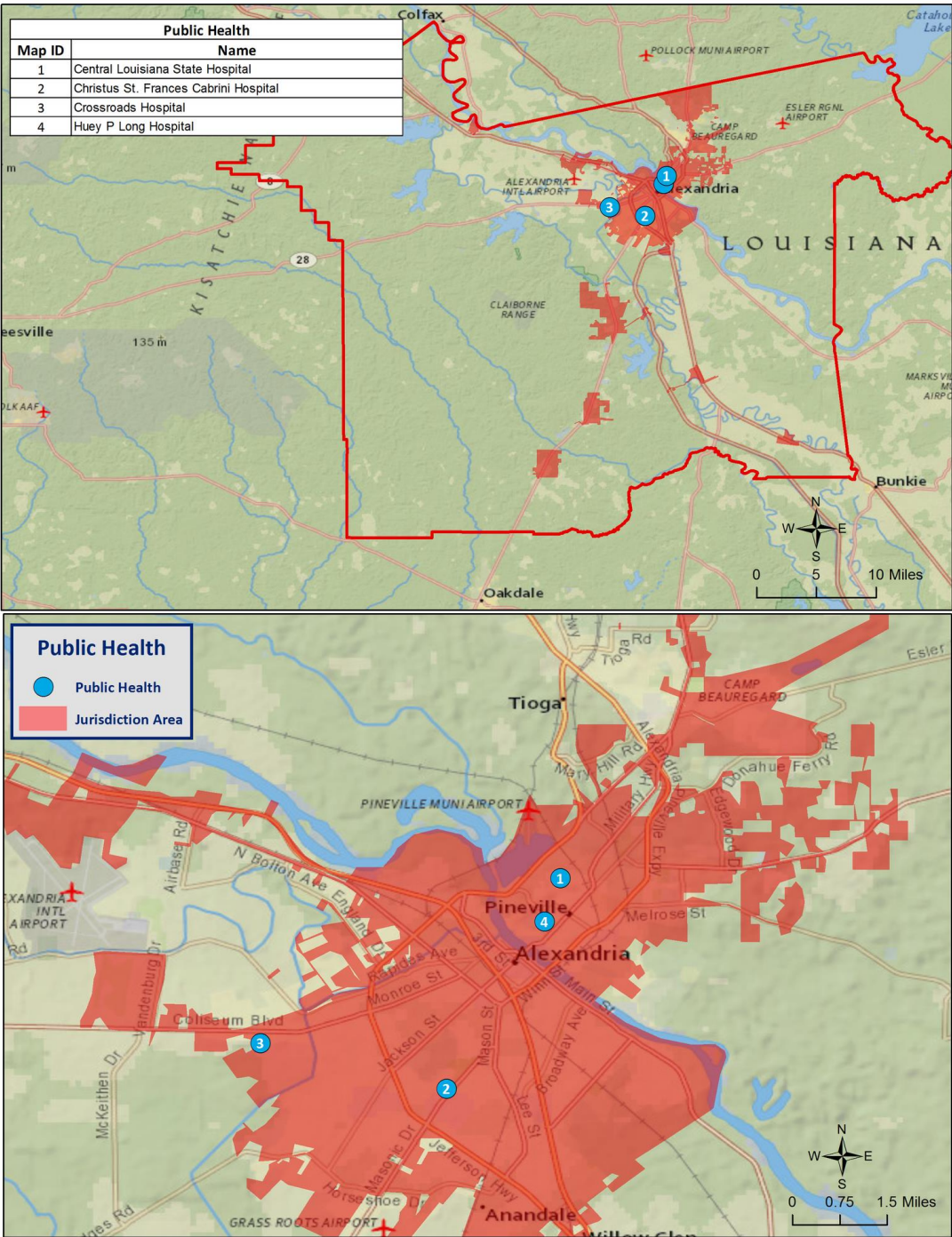




# Critical Facilities – Law Enforcement

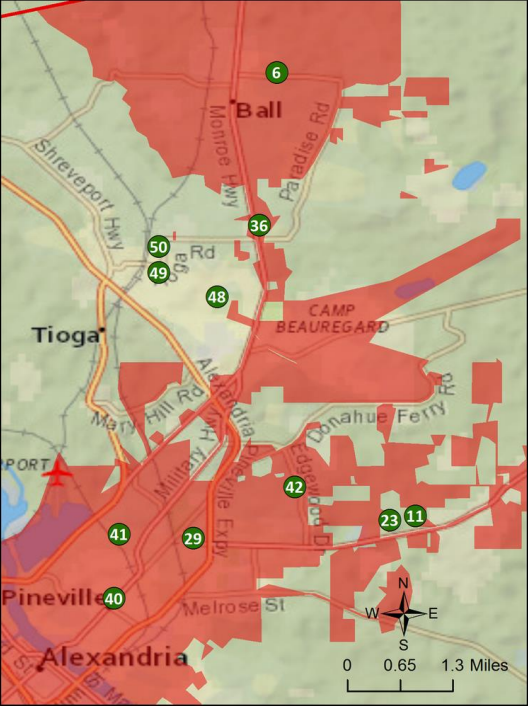
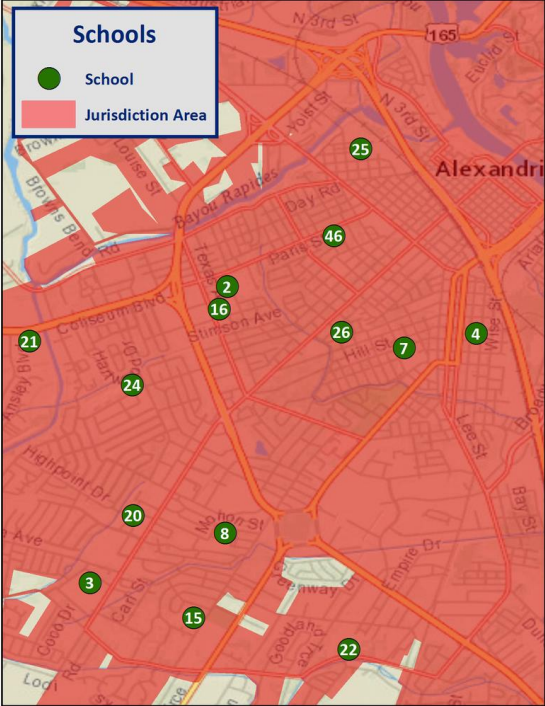
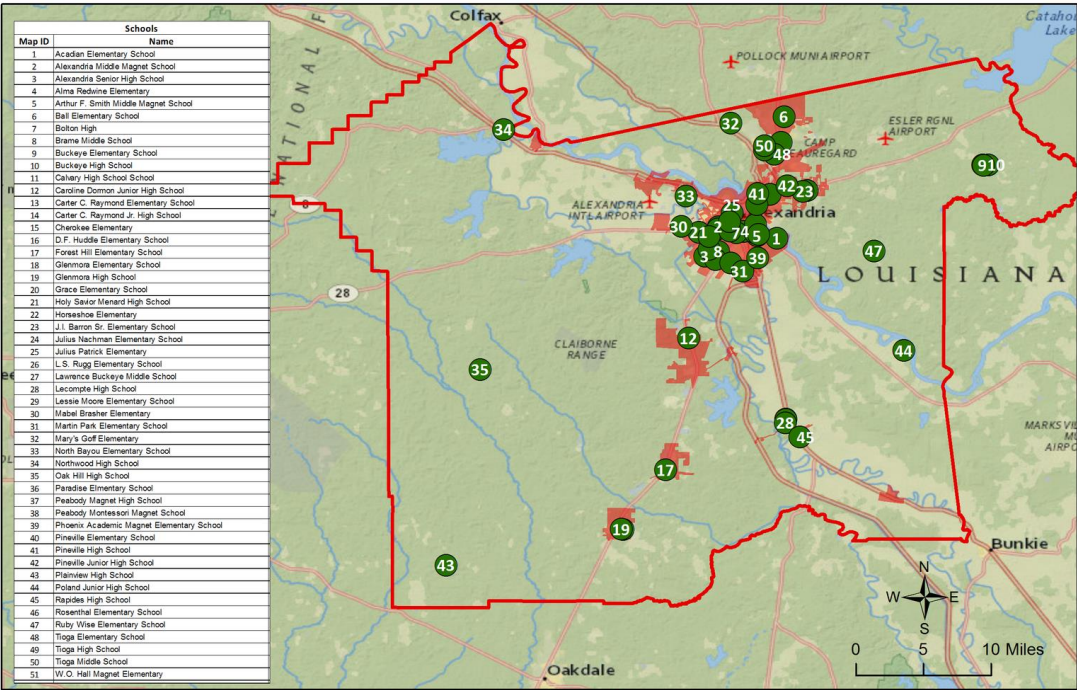


# Critical Facilities – Public Health





# Rapides Parish – Schools



# Flooding

- A flood is the overflow of water onto land that is usually not inundated.
- The National Flood Insurance Program defines a flood as a general and temporary condition of partial or complete inundation of two or more acres of normally dry land area or of two or more properties from overflow of inland or tidal waves, unusual and rapid accumulation or runoff of surface waters from any source, mudflow, or collapse or subsidence of land along the shore of a lake or similar body of water as a result of erosion or undermining caused by waves or currents of water exceeding anticipated cyclical levels that result in a flood as defined above.





# Flooding

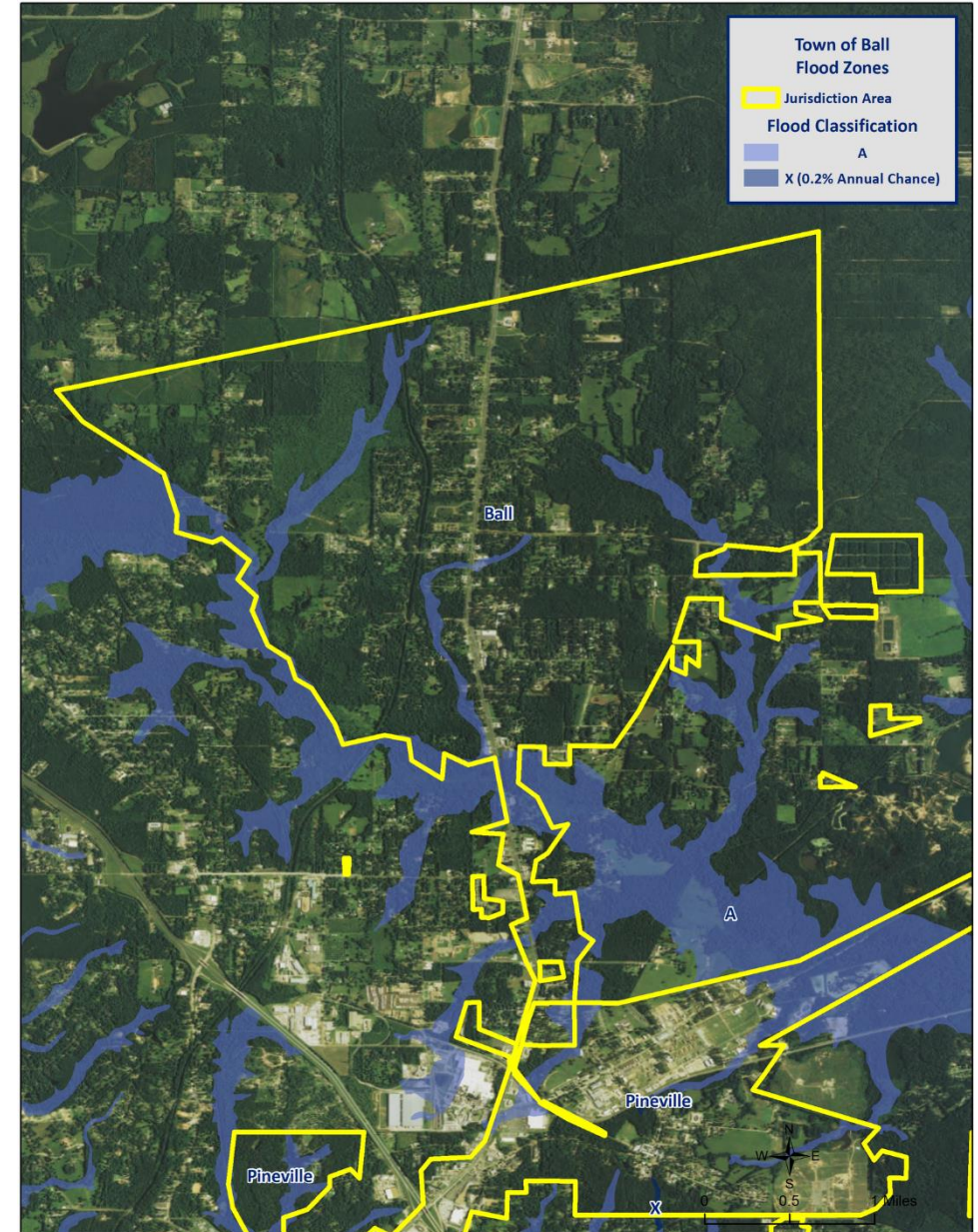
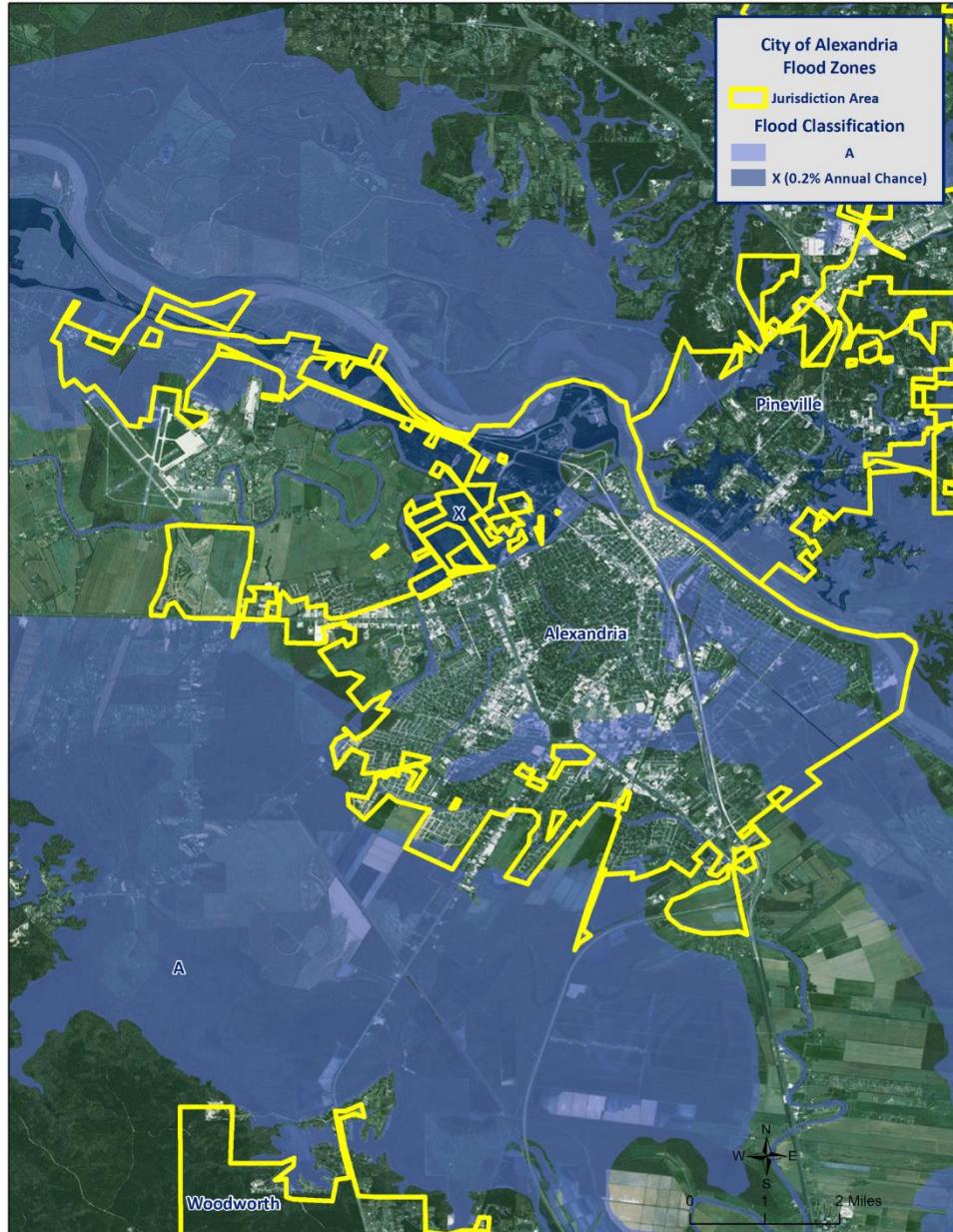
Types of flooding may include the following:

- Riverine
- Flash
- Ponding
- Backwater
- Urban
- Coastal



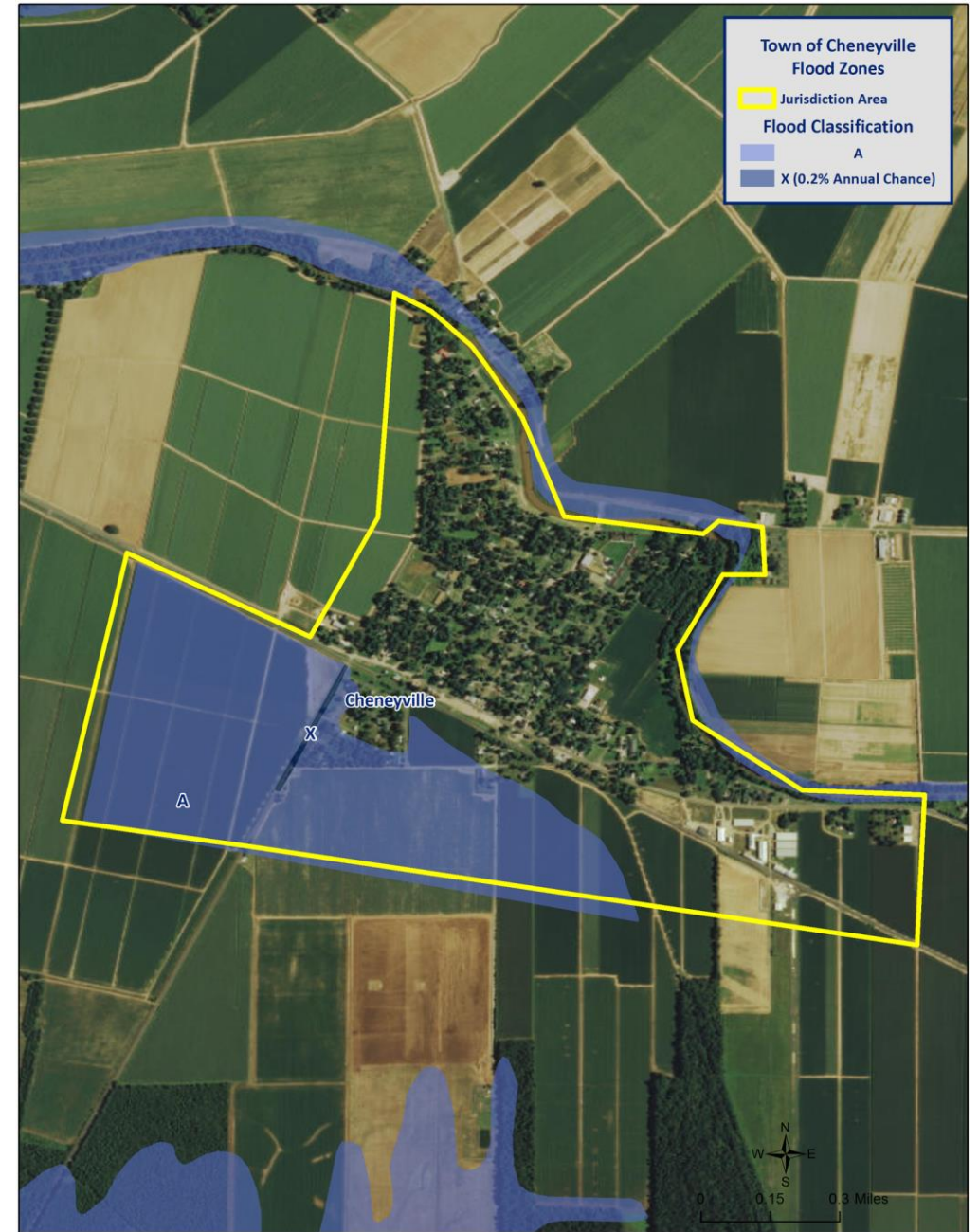


# Flood Zone Classifications – Parish/Jurisdictions



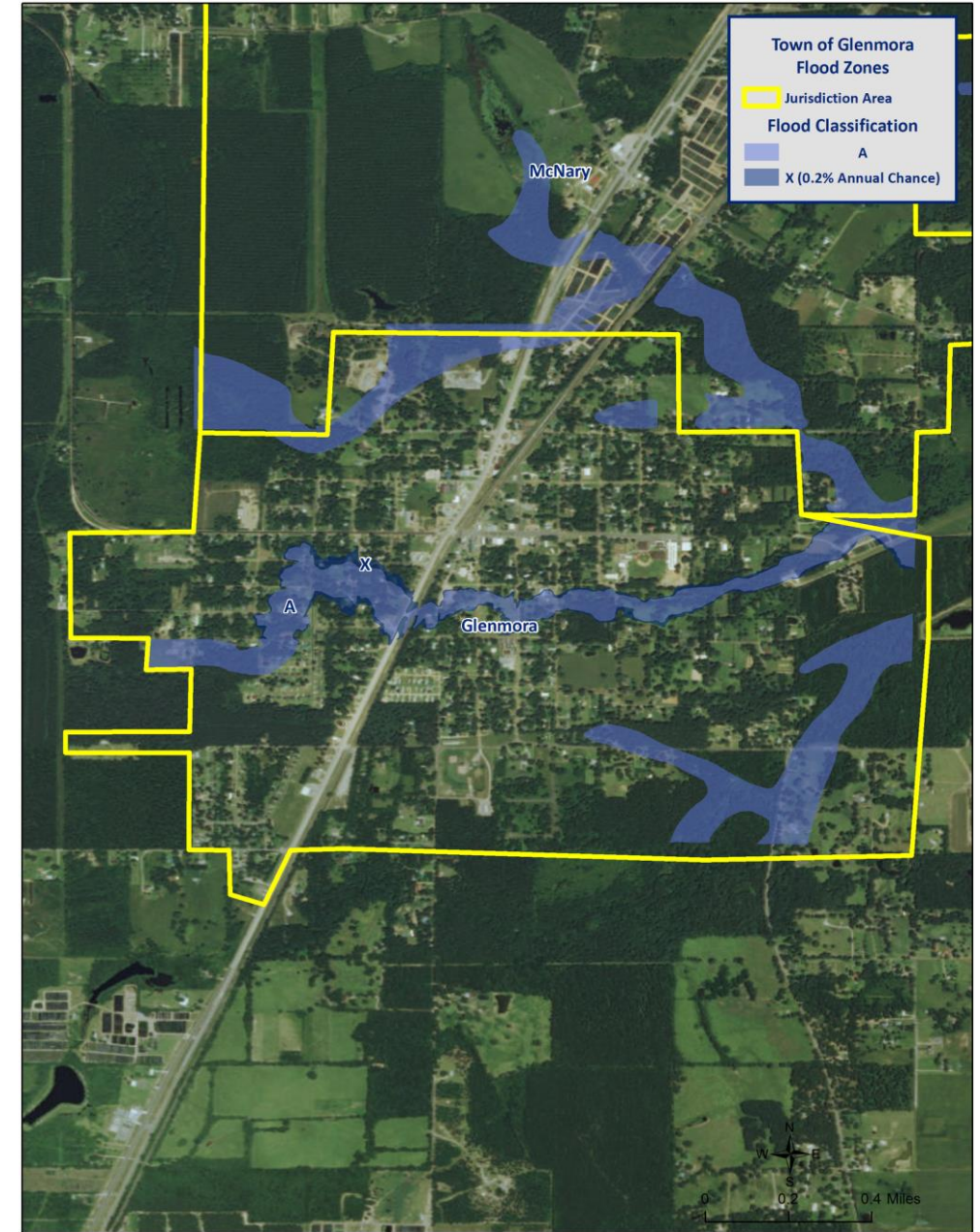
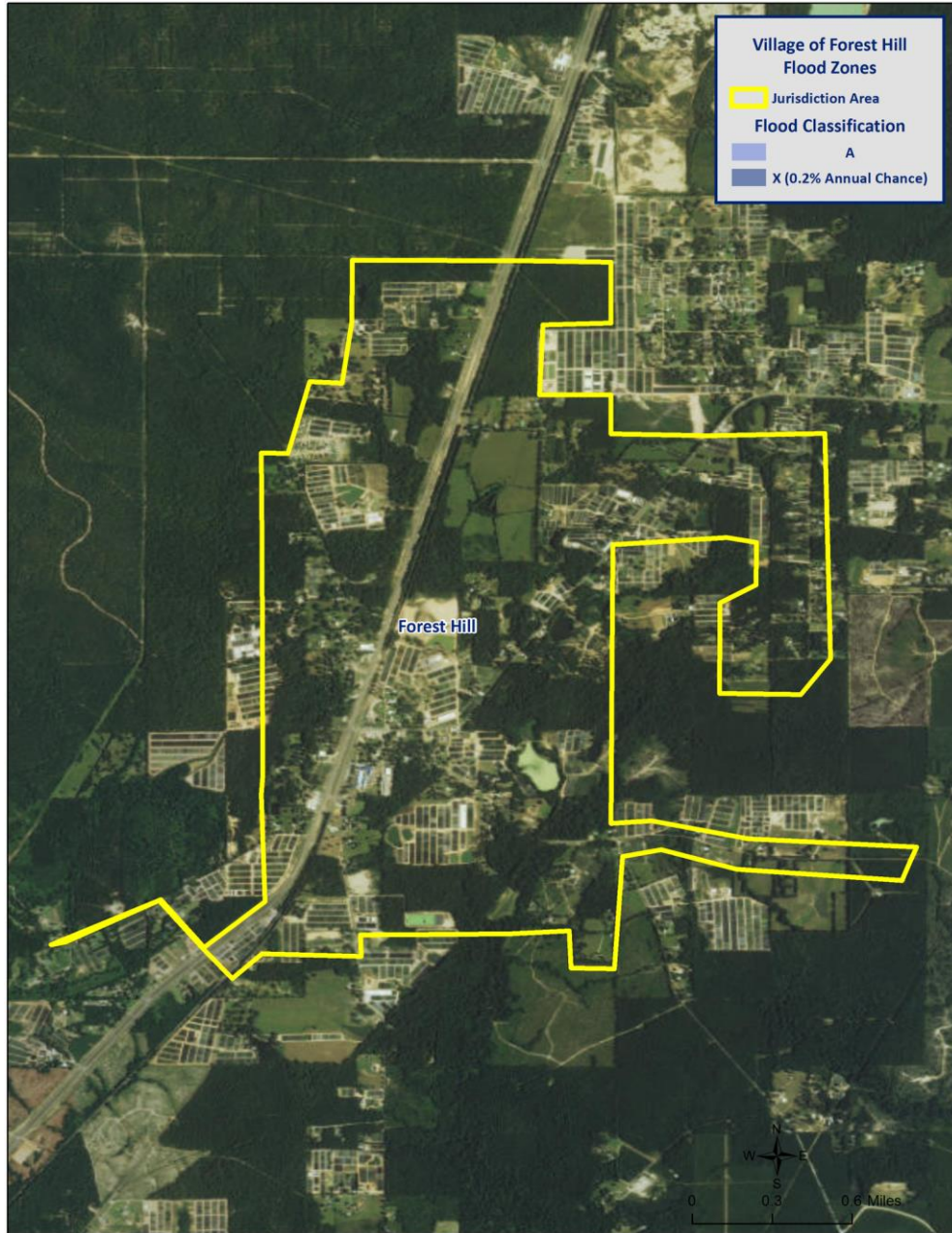


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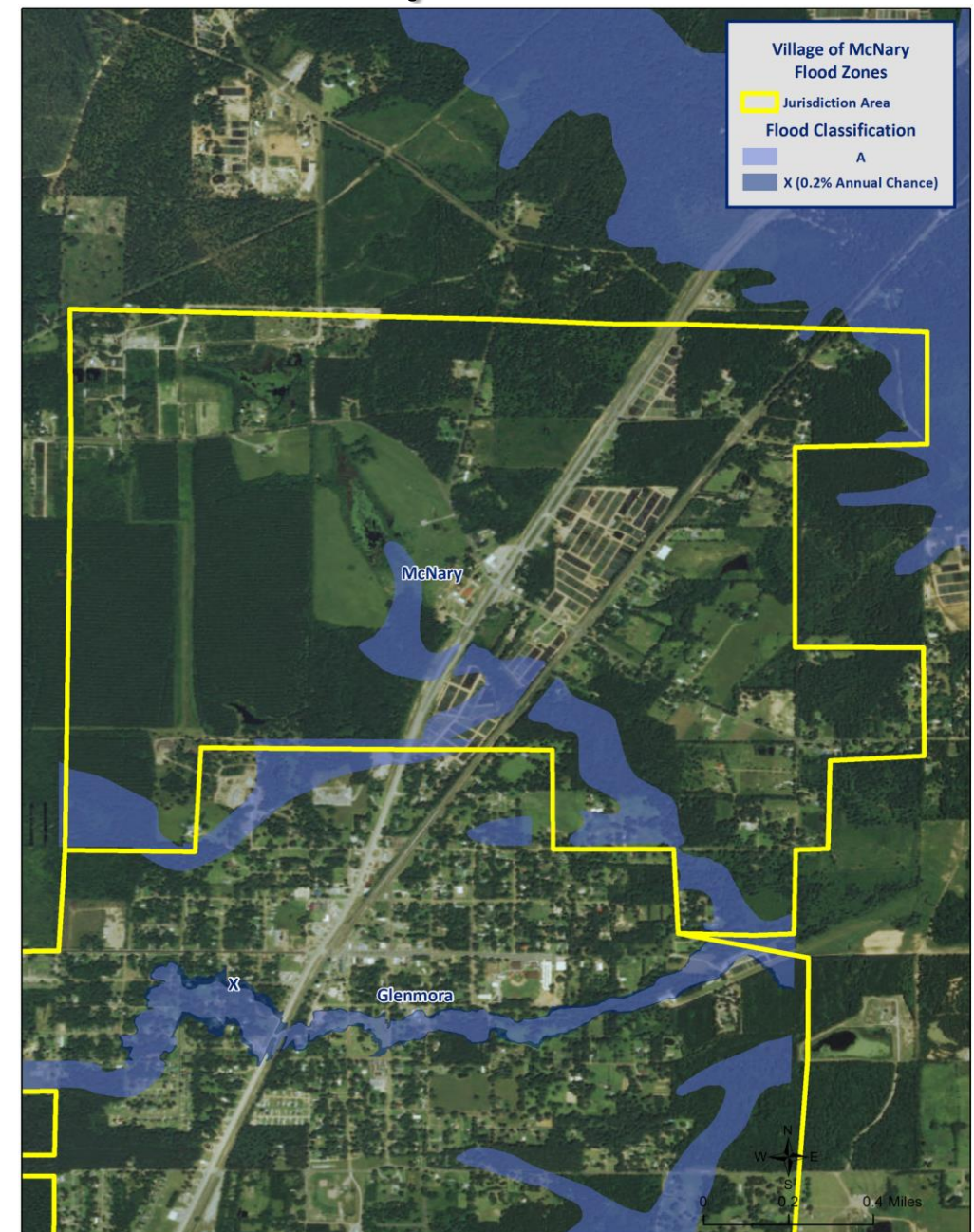


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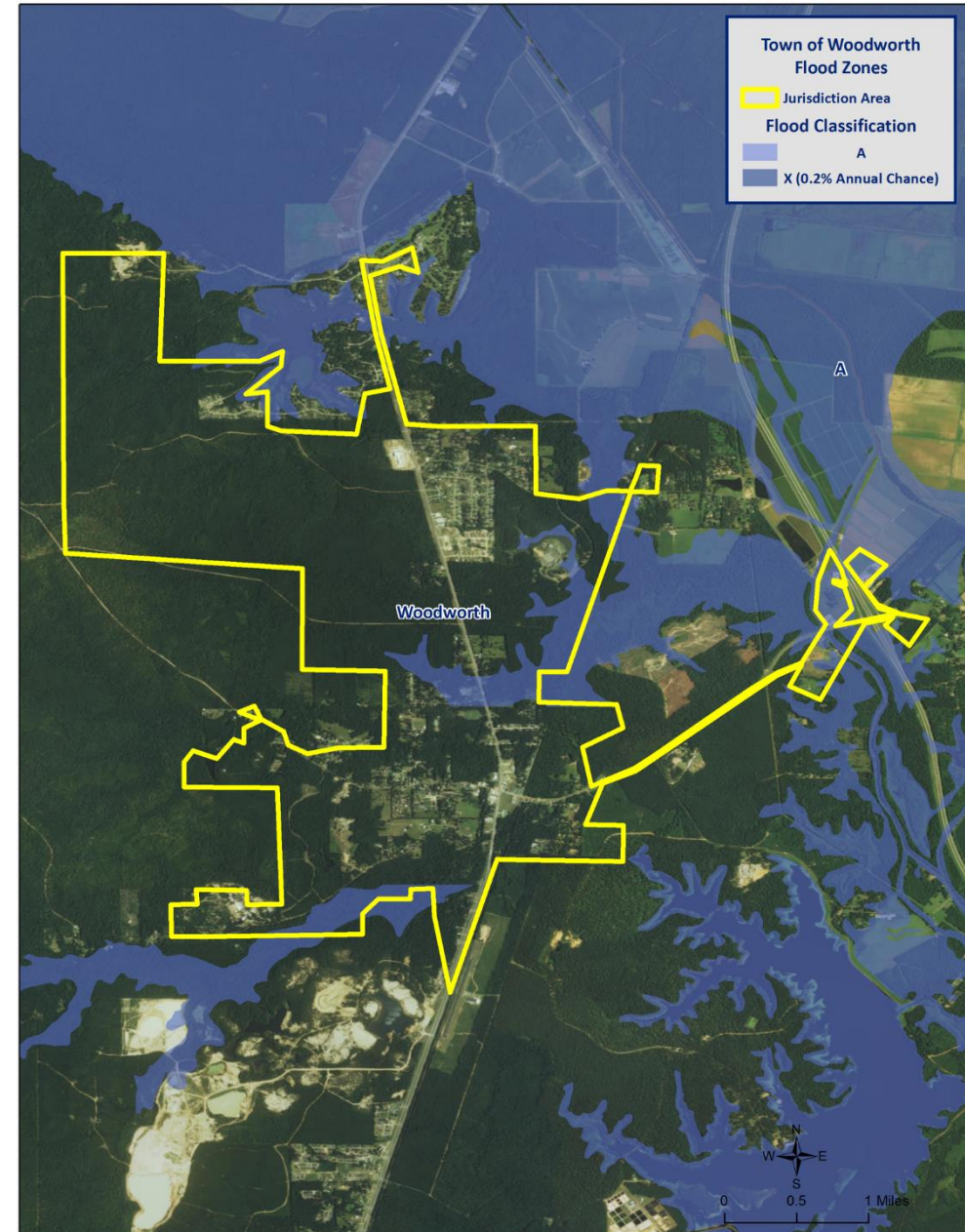
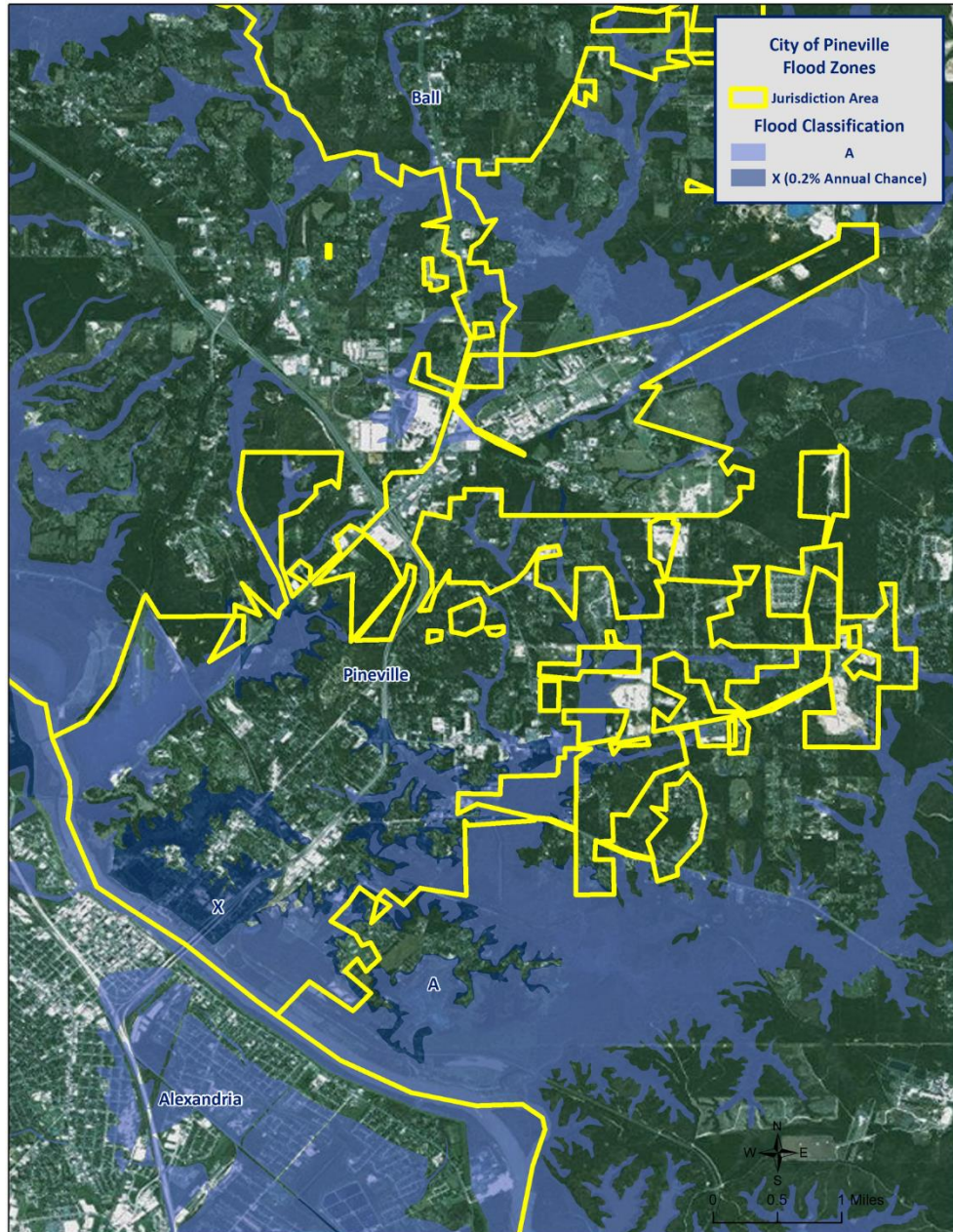


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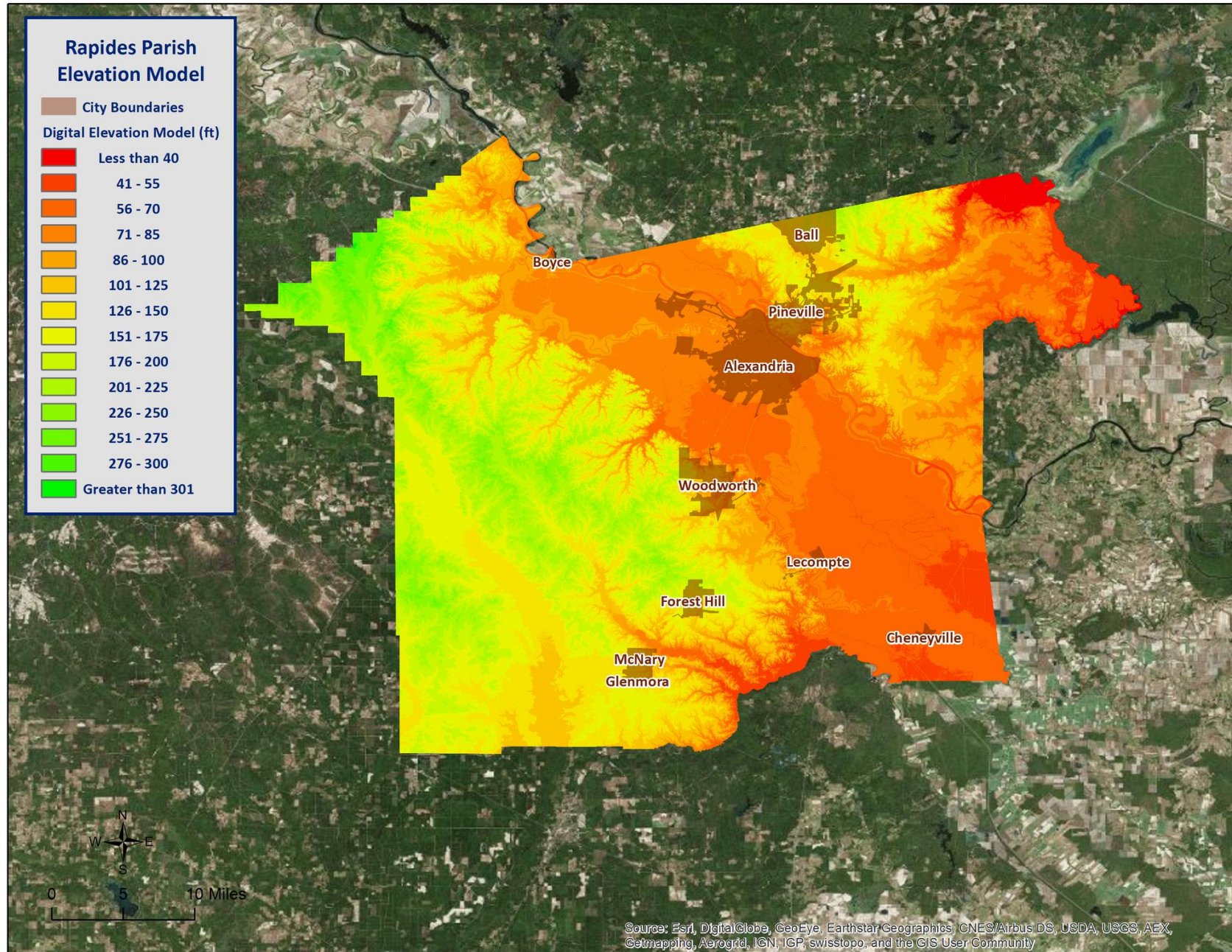


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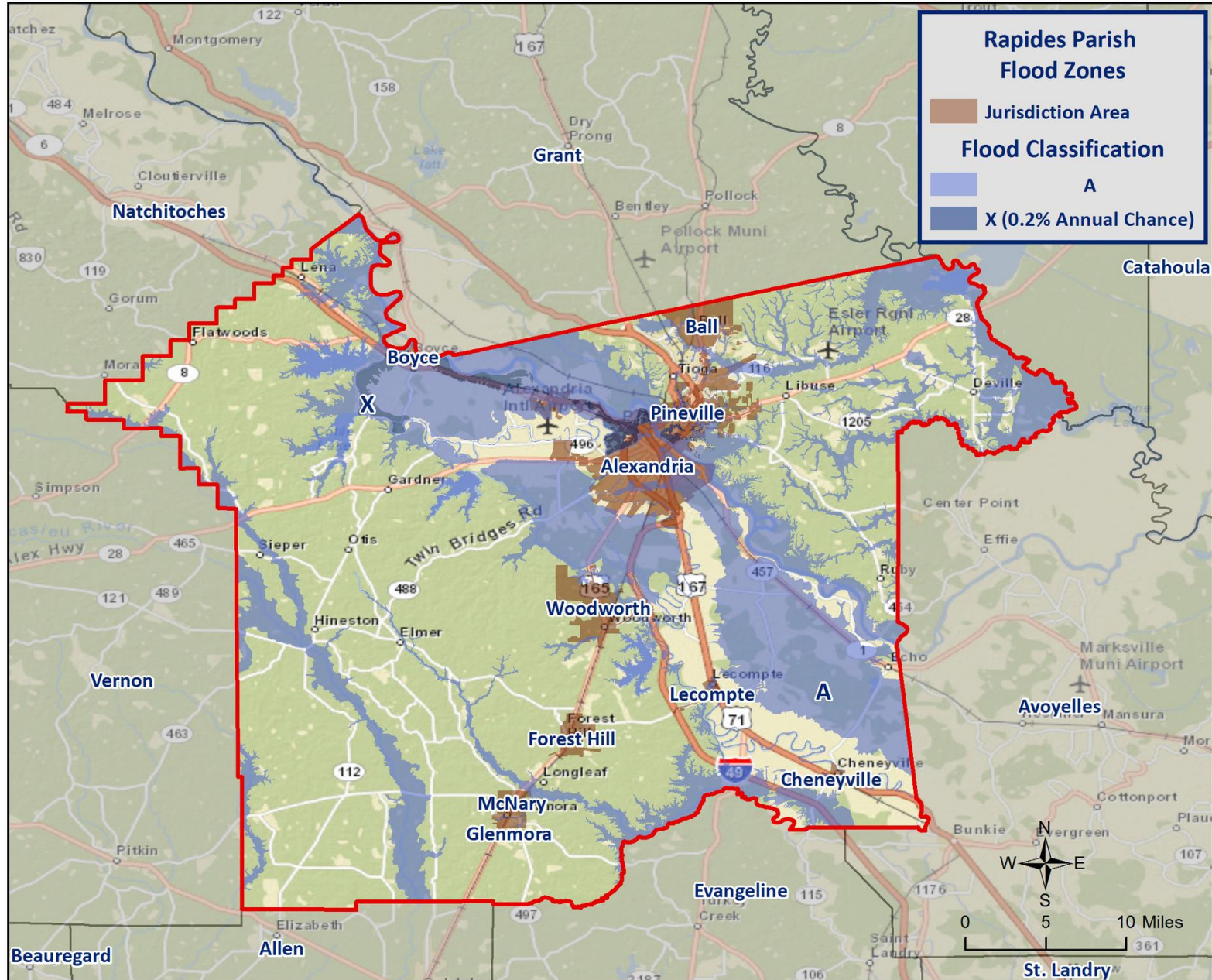


# Flooding Elevation Model





# Rapides Parish Flood Zones



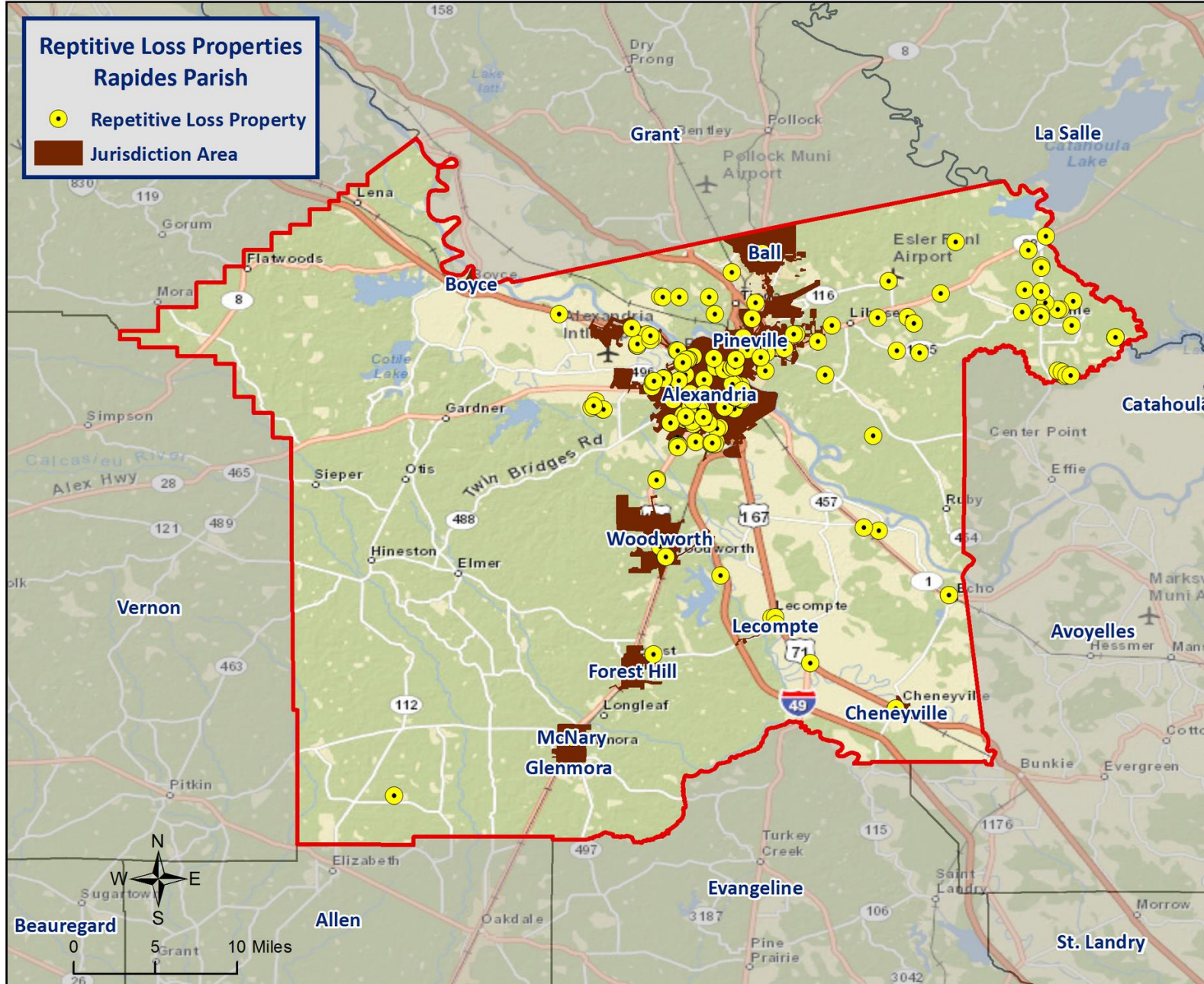
# Repetitive Flooding

- Some areas flood more often than other properties, even more than those in the mapped 100-year floodplain.
- FEMA defines a “repetitive loss” property as one which has received two flood insurance claim payments for at least \$1,000 over any 10-year period since 1978.
- These properties are important to the National Flood Insurance Program and the Community Rating System because even though they comprise 1% of the policy base, they account for 30% of the country’s flood insurance claim payments.

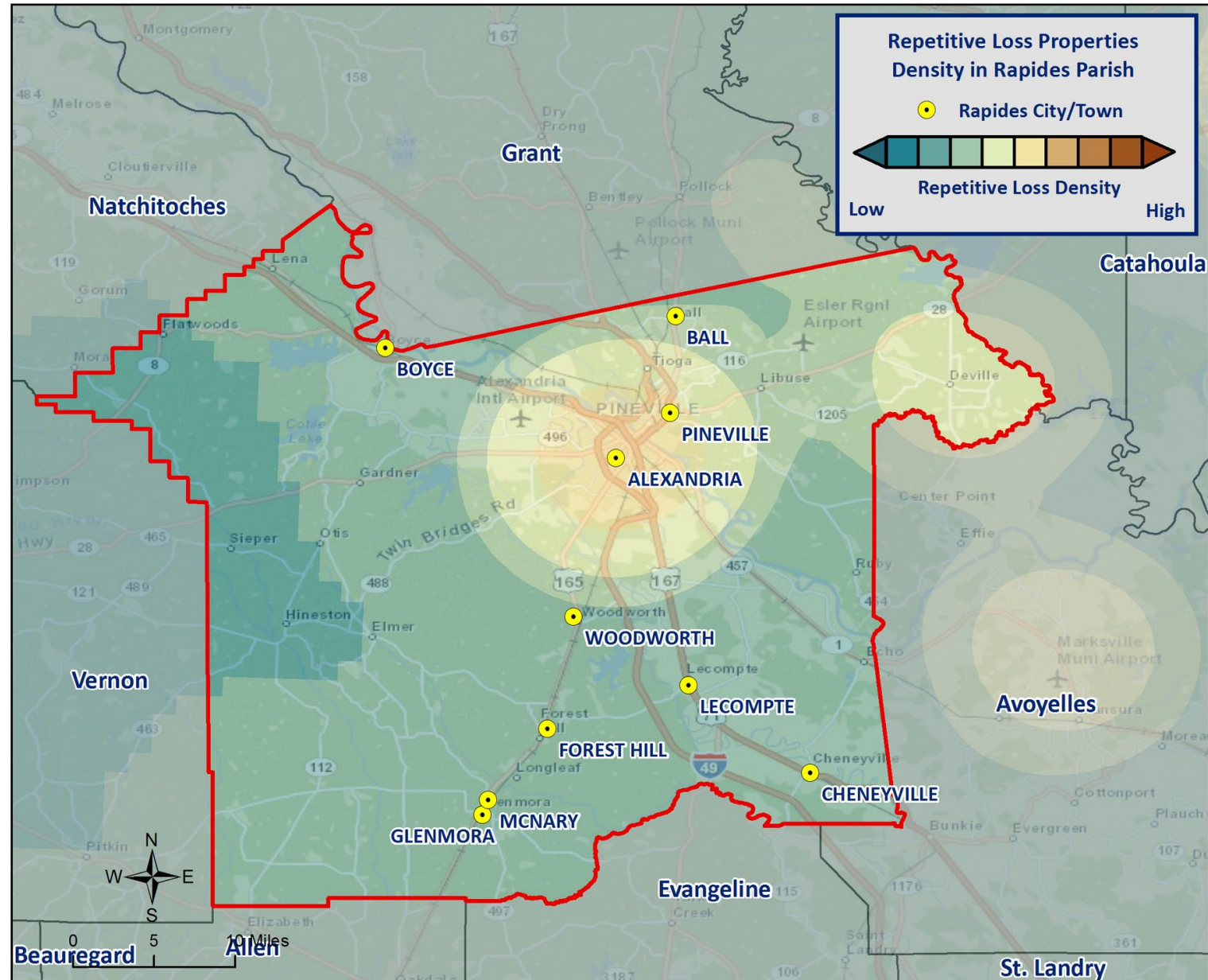




# Repetitive Loss Properties



# Repetitive Loss Properties Density Model



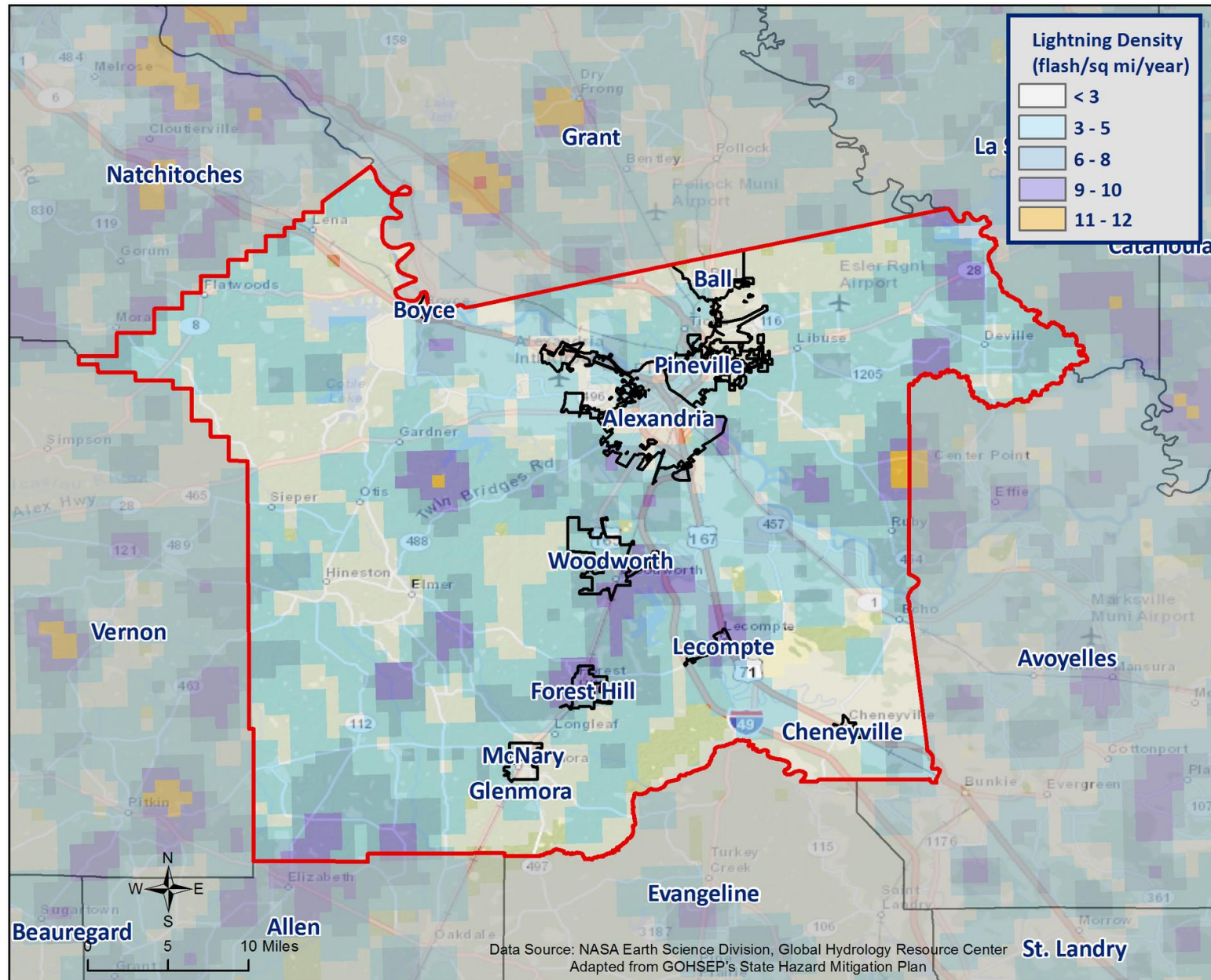


# Thunderstorms – Lightning/High Wind/Hail

- A **thunderstorm**, also known as an **electrical storm**, a **lightning storm**, or a **thundershower**, is a type of storm characterized by the presence of lightning and its acoustic effect on the Earth's atmosphere known as thunder.
- They are usually accompanied by strong winds, heavy rain, and sometimes snow, sleet, or hail.
- Thunderstorms may line up in a series or rainband, known as a squall line. Strong or severe thunderstorms may rotate, known as supercells. While most thunderstorms move with the mean wind flow through the layer of the troposphere that they occupy, vertical wind shear causes a deviation in their course at a right angle to the wind shear direction.

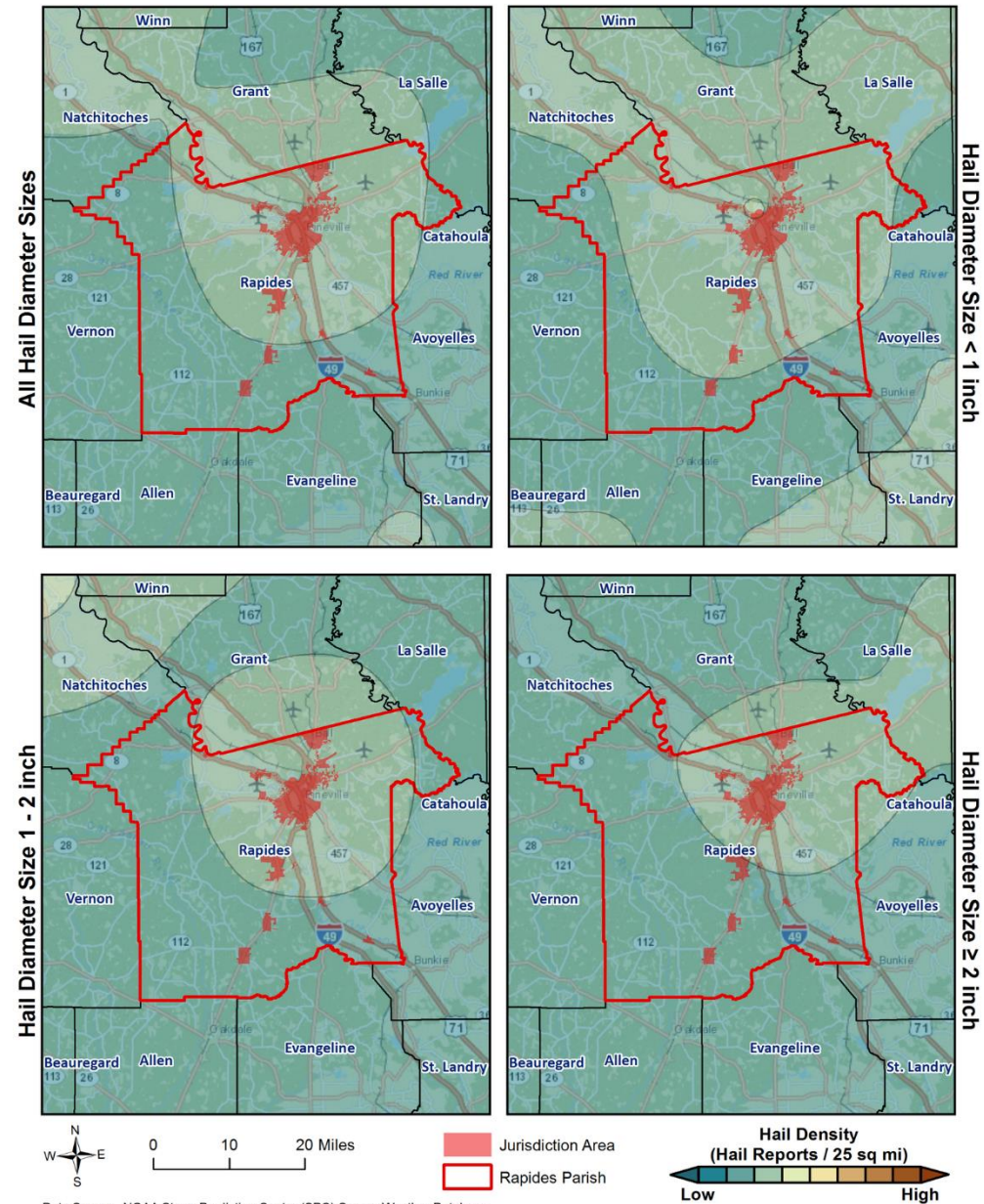


# Lightning Density Model





# Hail Density Models





# Tornadoes

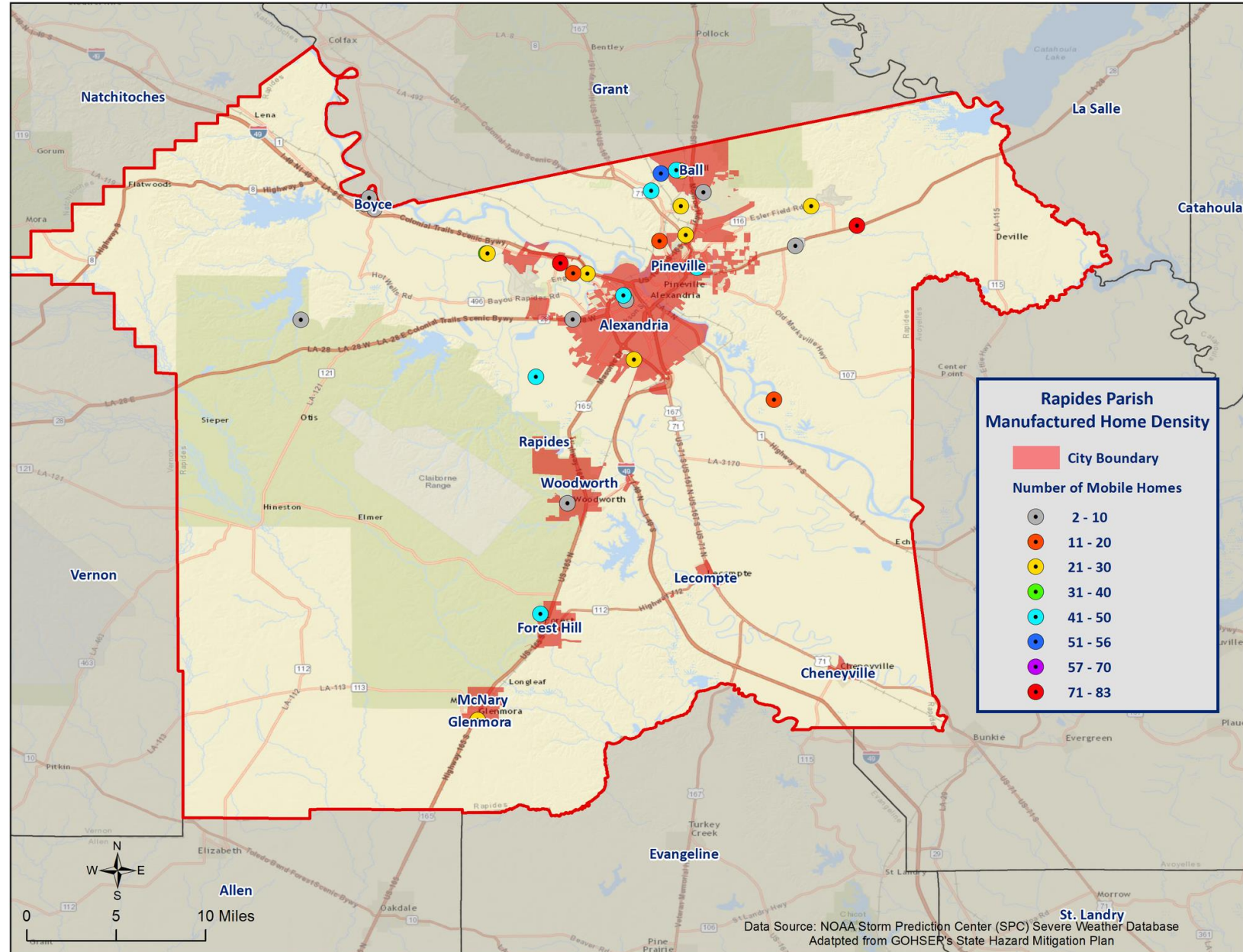
- Tornadoes (also called twisters and cyclones) are rapidly rotating funnels of wind extending between storm clouds and the ground.
- Tornadoes are the most severe storms for their size, and 70% of the world's reported tornadoes occur within the continental United States.



ORIGINAL FUJITA SCALE		ENHANCED FUJITA SCALE	
F5	261-318 mph	EF5	+200 mph
F4	207-260 mph	EF4	166-200 mph
F3	158-206 mph	EF3	136-165 mph
F2	113-157 mph	EF2	111-135 mph
F1	73-112 mph	EF1	86-110 mph
F0	<73 mph	EF0	65-85 mph

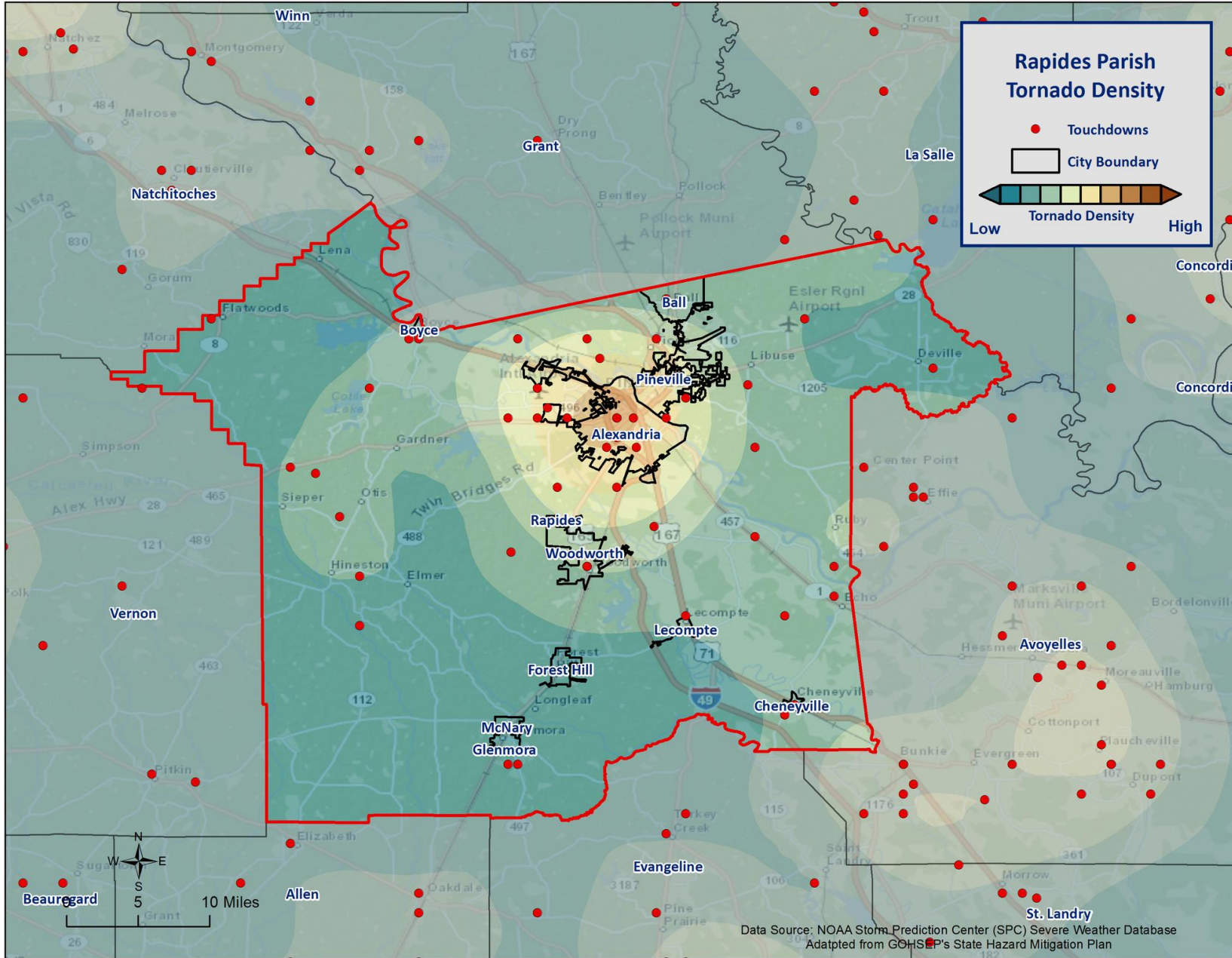


# Manufactured Home Density





# Tornado Density





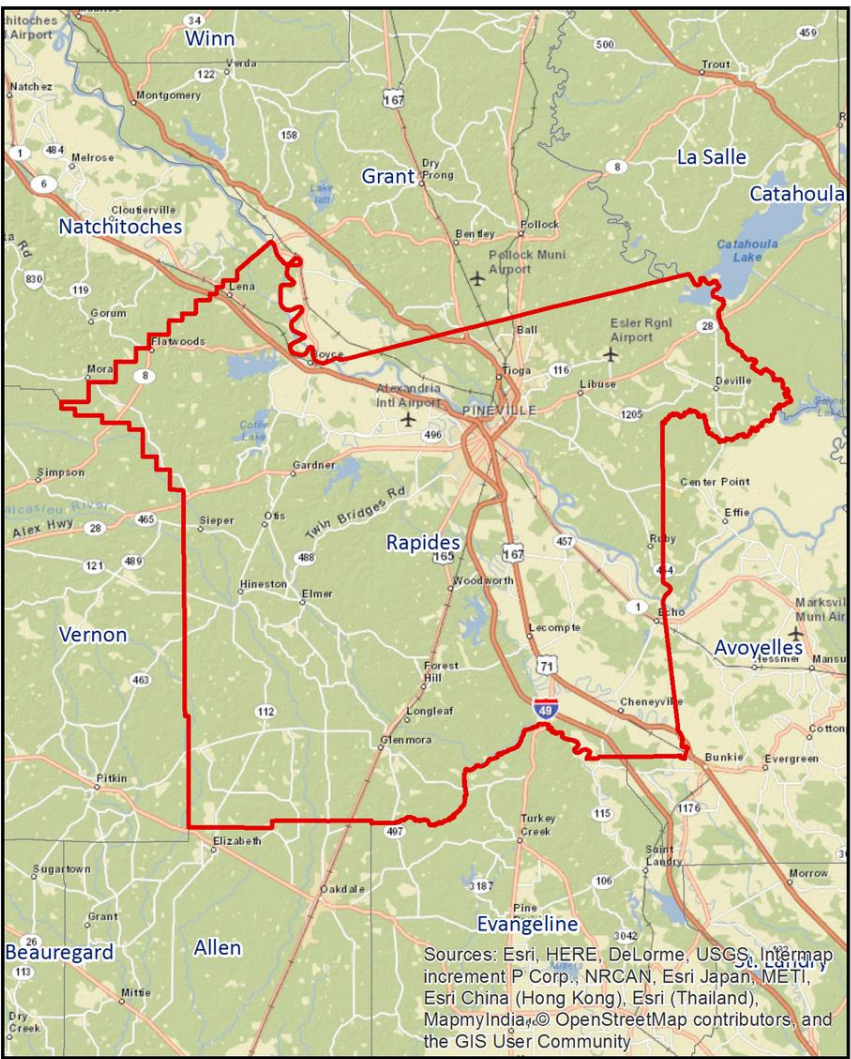
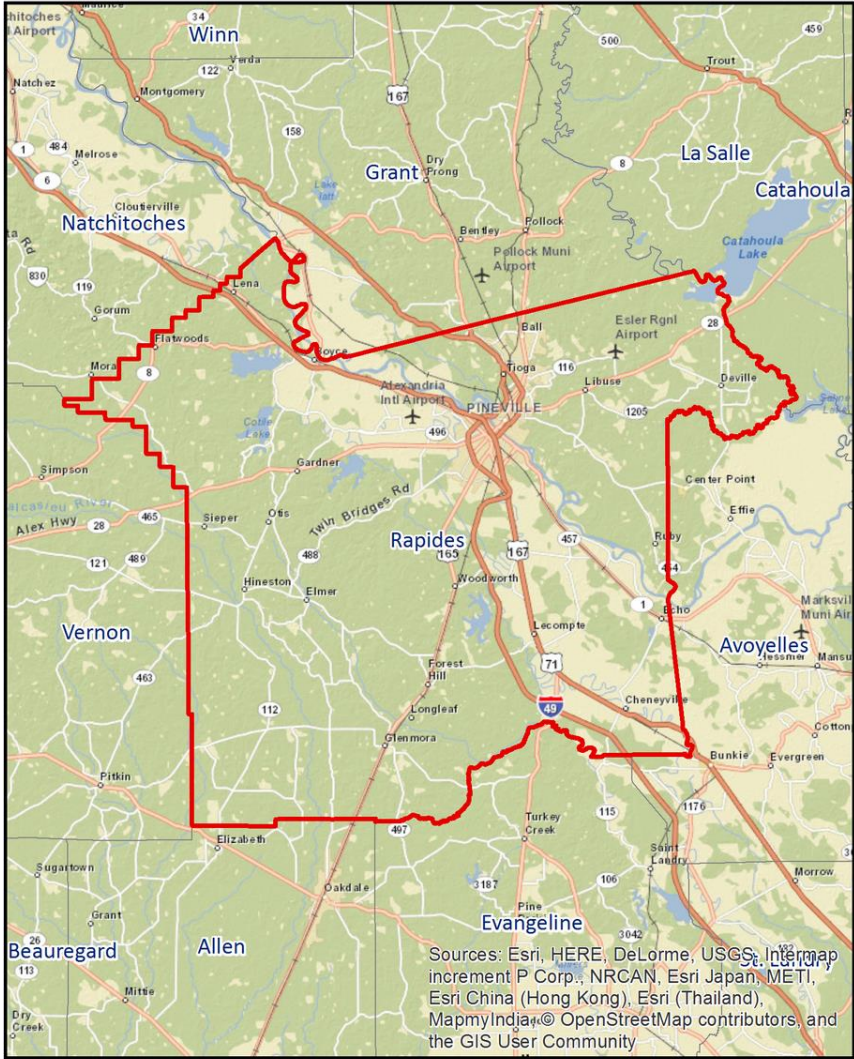
# Tropical Cyclones

- Tropical cyclones are defined spinning, low-pressure air masses that draw surface air into their centers and attain strength ranging from weak tropical waves to the most intense hurricanes

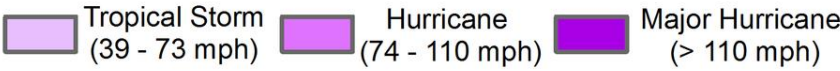


Saffir-Simpson Hurricane Wind Scale		
	Sustained Wind Speed	Effects
Category 1	74-95 mph (119-153 km/hr)	Very dangerous winds will produce some damage. Low-lying coastal roads flooded, minor pier damage
Category 2	96-110 mph (154-177 km/hr)	Extremely dangerous winds will cause extensive damage. Major damage to exposed mobile homes, evacuation of some shoreline residents
Category 3	111-130 mph (178-209 km/hr)	Devastating damage will occur. Some structural damage to small buildings; serious flooding at coast and many smaller structures near coast destroyed
Category 4	131-155 mph (210-249 km/hr)	Catastrophic damage will occur. High risk of injury or death to people, livestock, and pets due to flying and falling debris. Long-term water shortages will increase human suffering. Most of the area will be uninhabitable for weeks or months.
Category 5	> 155 mph (249 km/hr)	Catastrophic damage will occur. People, livestock, and pets are at very high risk of injury or death from flying or falling debris.  A high percentage of frame homes will be destroyed. Long-term power outages and water shortages will render area uninhabitable for weeks or months.

# Hurricane Katrina (2005)



Wind Speed (Saffir-Simpson Scale)



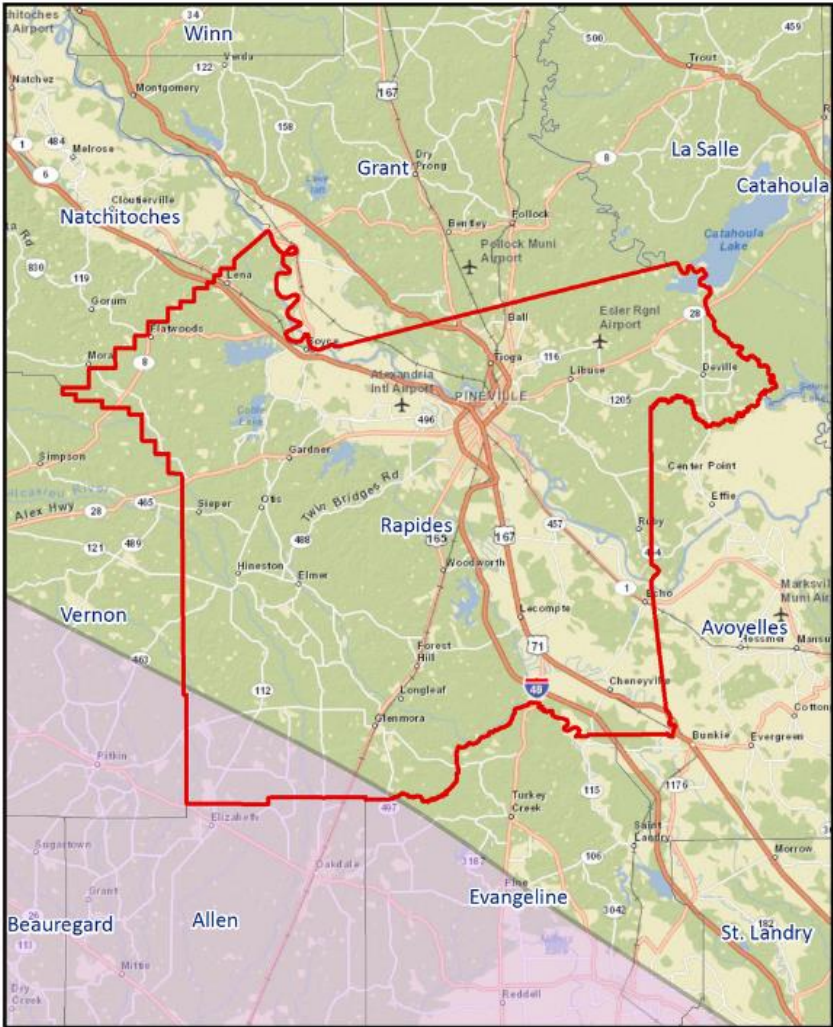
Total Precipitation (inches)



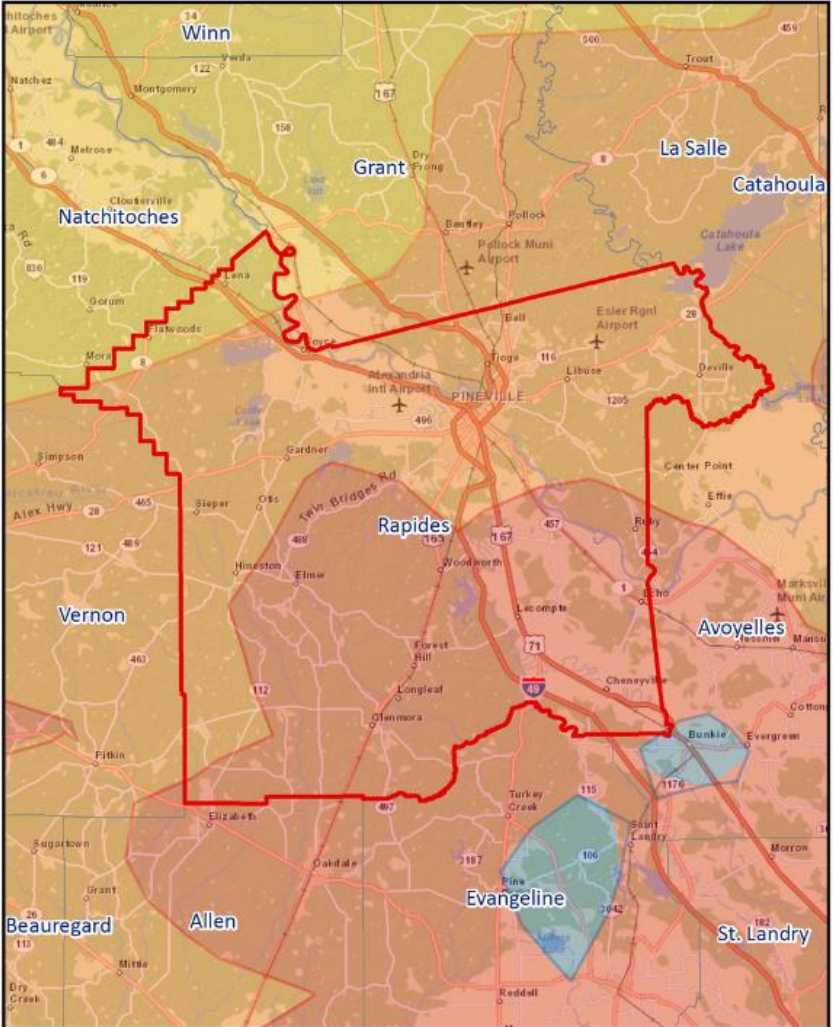
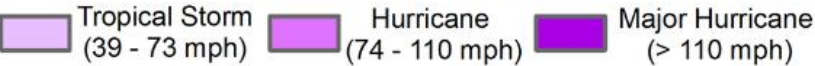
Data Source: NOAA Hurricane Research Division (HRD)  
Adapted from GOHSEP's State Hazard Mitigation Plan



Hurricane Rita (2005)



Wind Speed (Saffir-Simpson Scale)



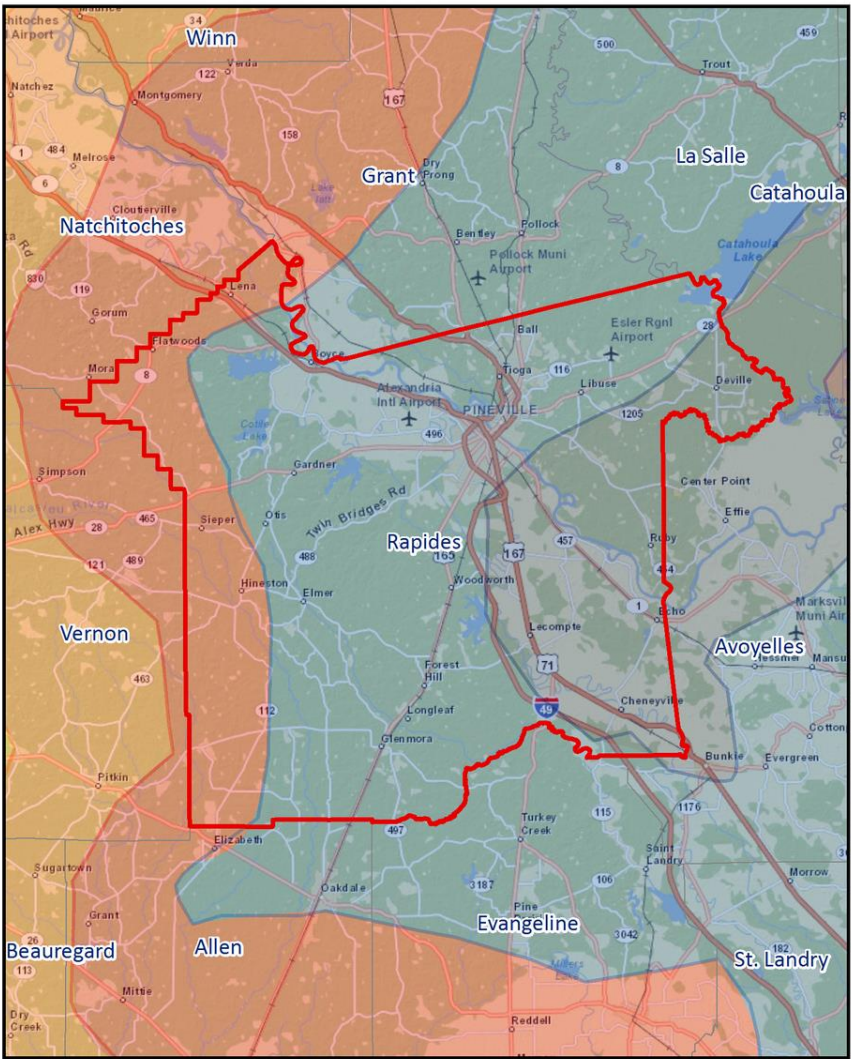
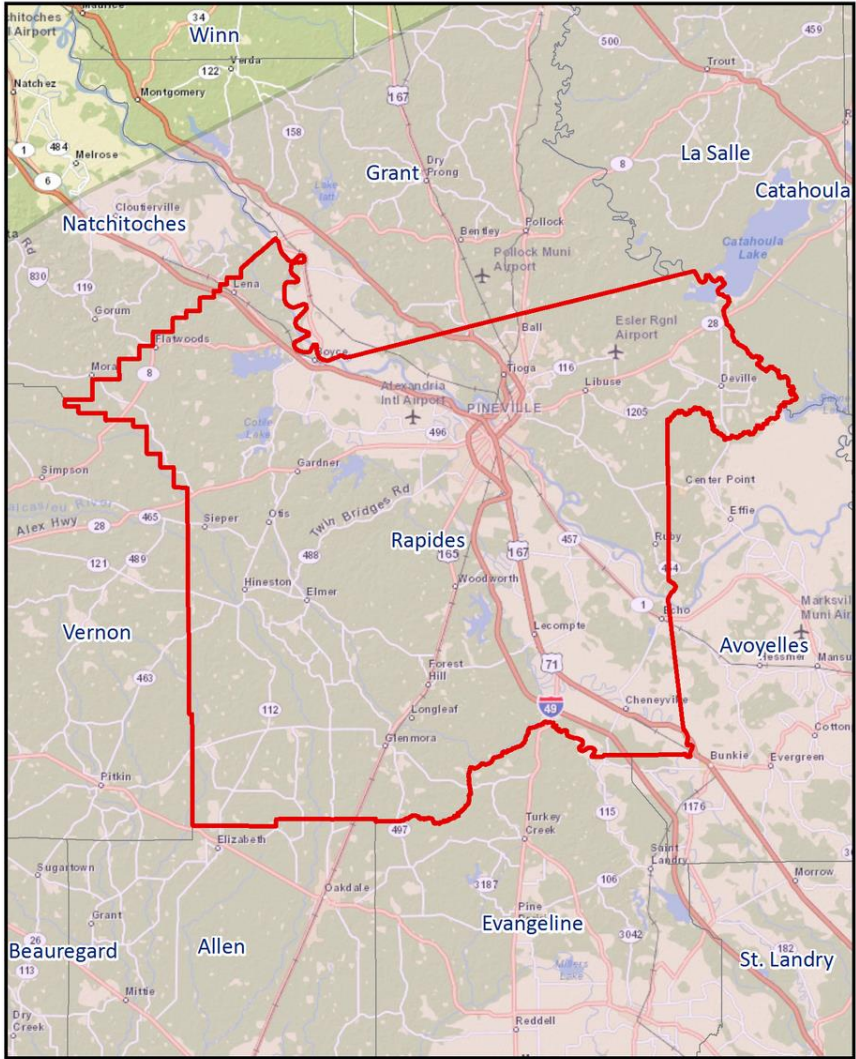
Total Precipitation (inches)



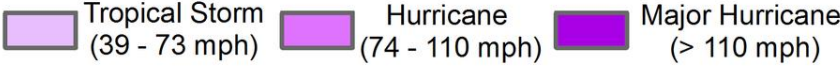
Data Source: NOAA Hurricane Research Division (HRD)  
Adapted from GOHSEP's State Hazard Mitigation Plan



# Hurricane Gustav (2008)



Wind Speed (Saffir-Simpson Scale)



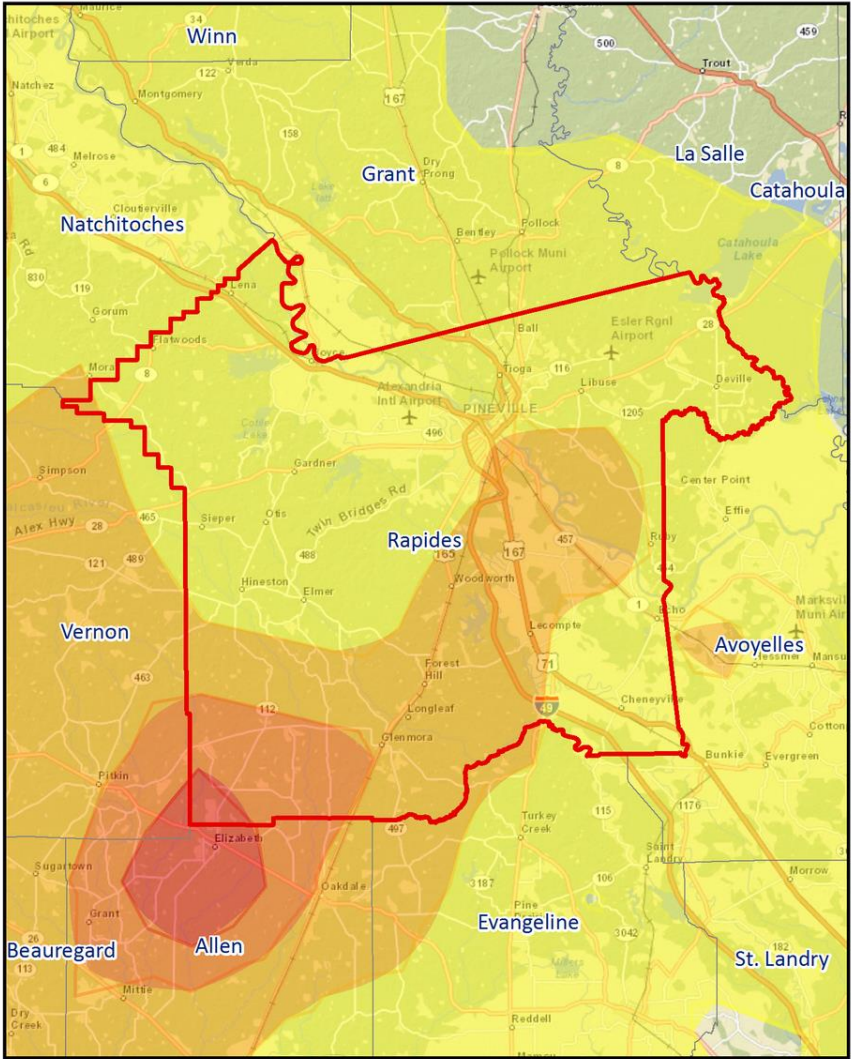
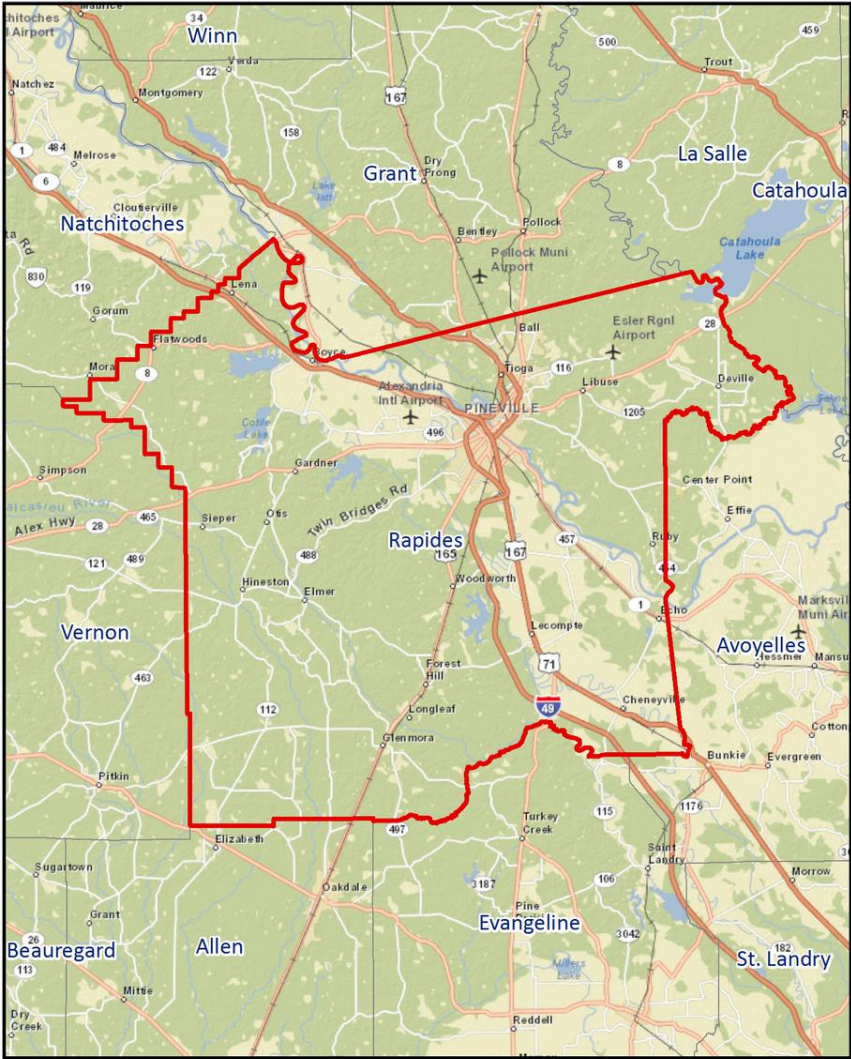
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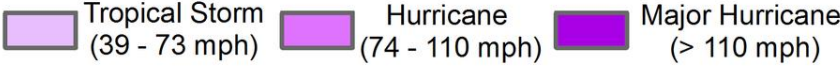
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# Hurricane Ike (2008)



Wind Speed (Saffir-Simpson Scale)



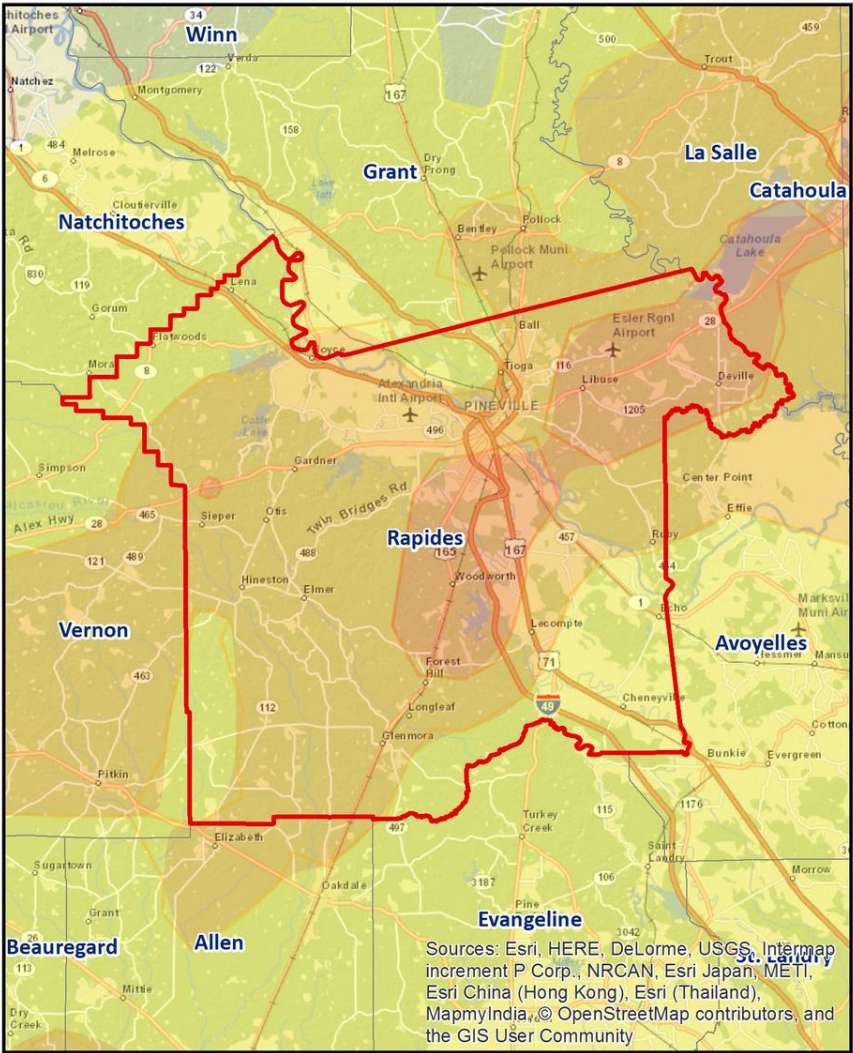
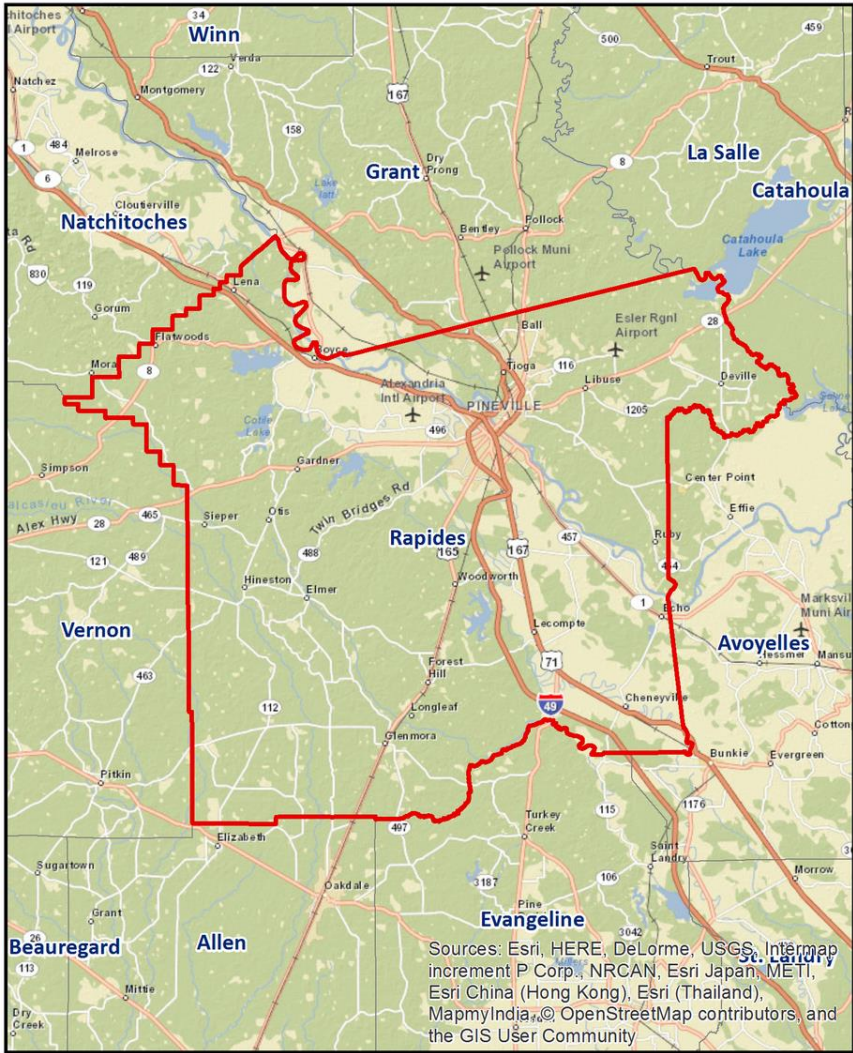
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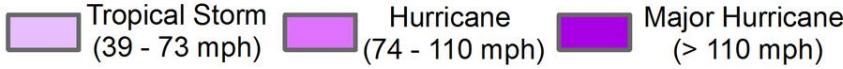
Data Source: NOAA Hurricane Research Division (HRD)  
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# Hurricane Isaac (2012)



Wind Speed (Saffir-Simpson Scale)

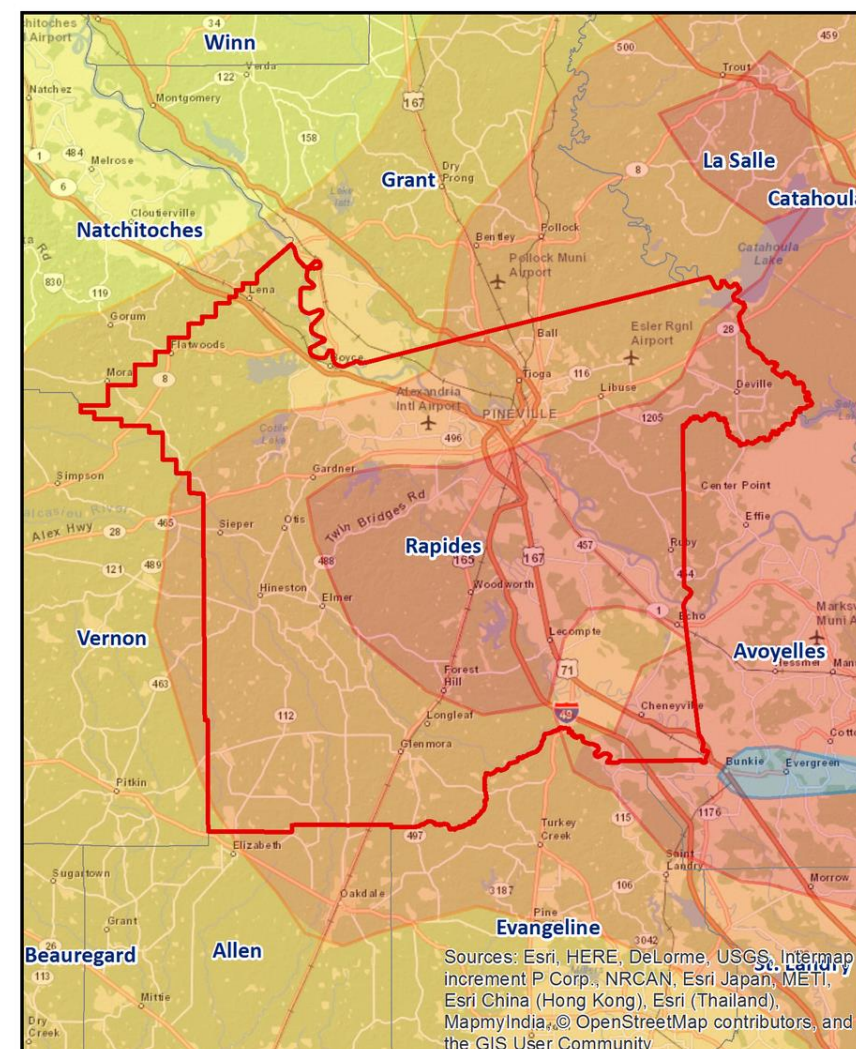
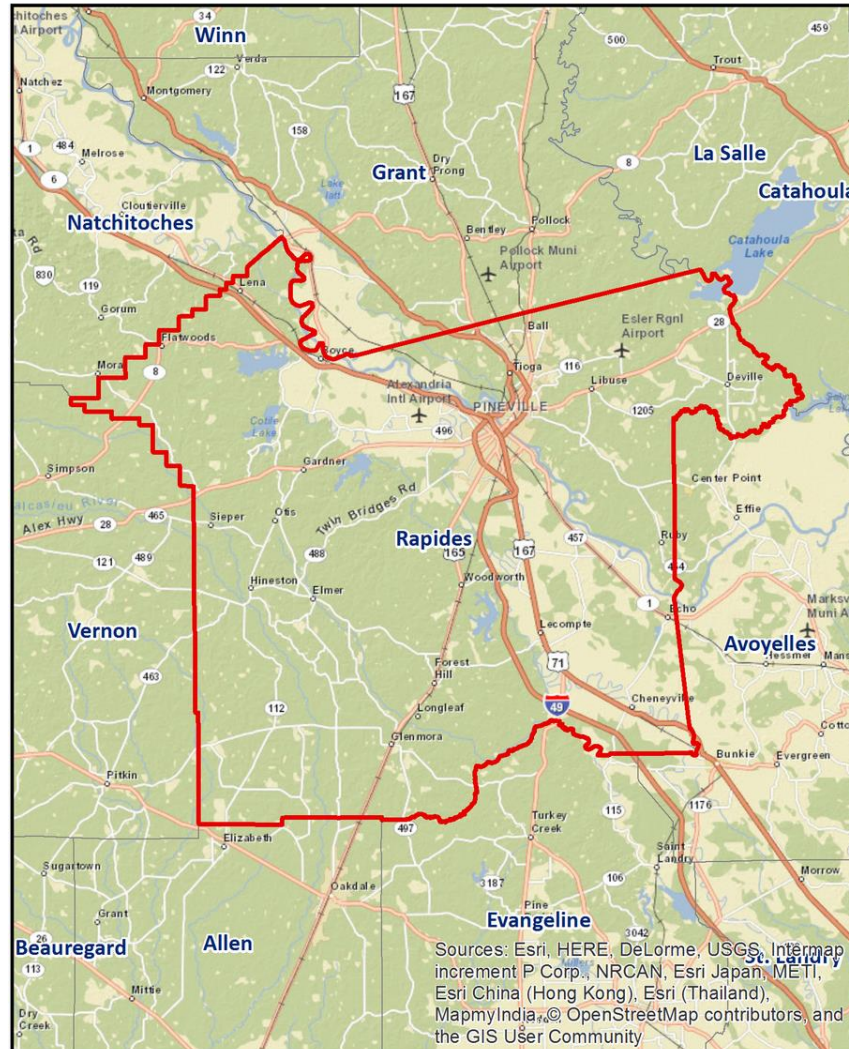


Total Precipitation (inches)

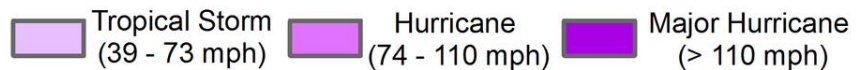




# Tropical Storm Lee (2011)



## Wind Speed (Saffir-Simpson Scale)

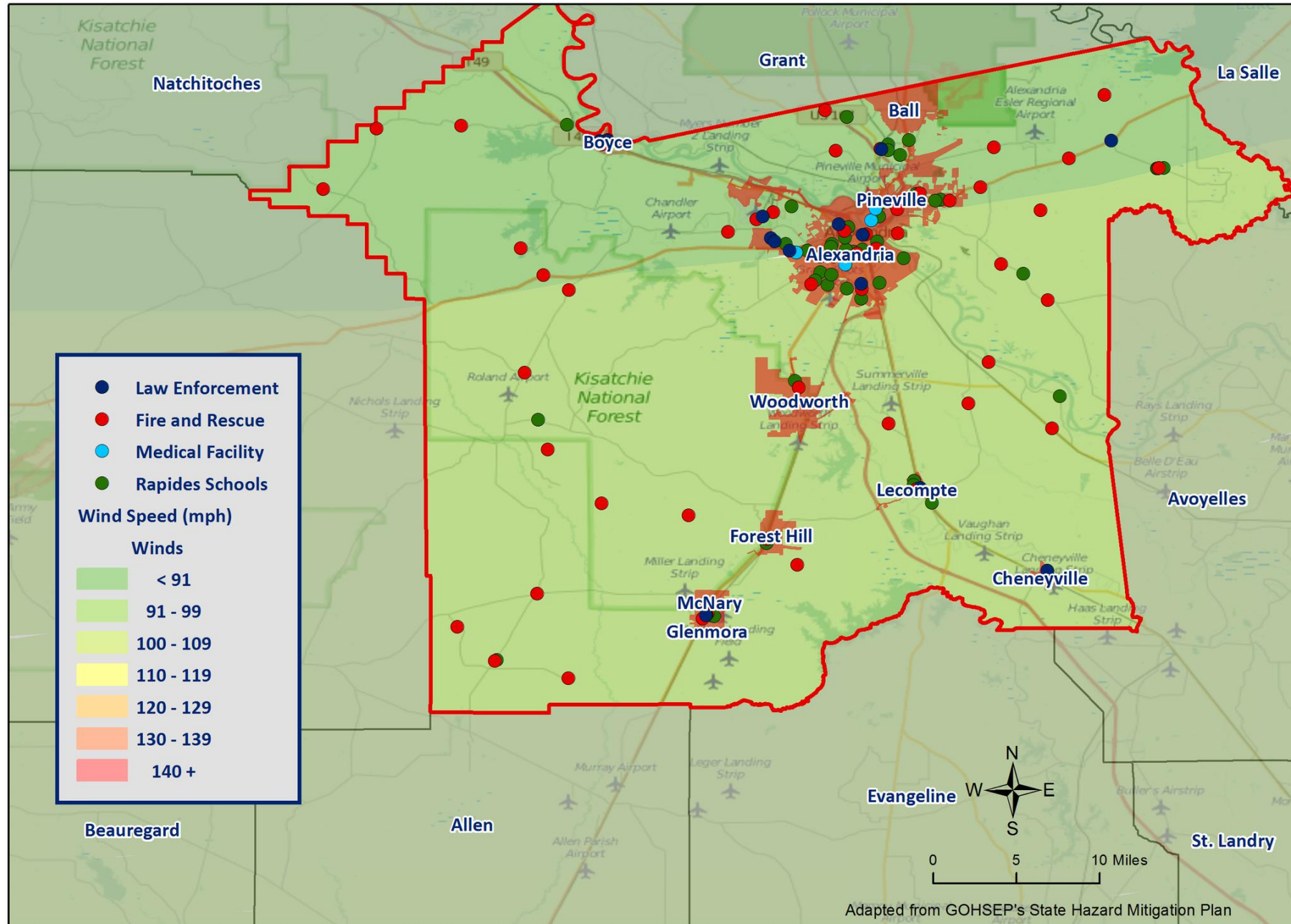


## Total Precipitation (inches)





# Critical Facilities – Wind Speeds

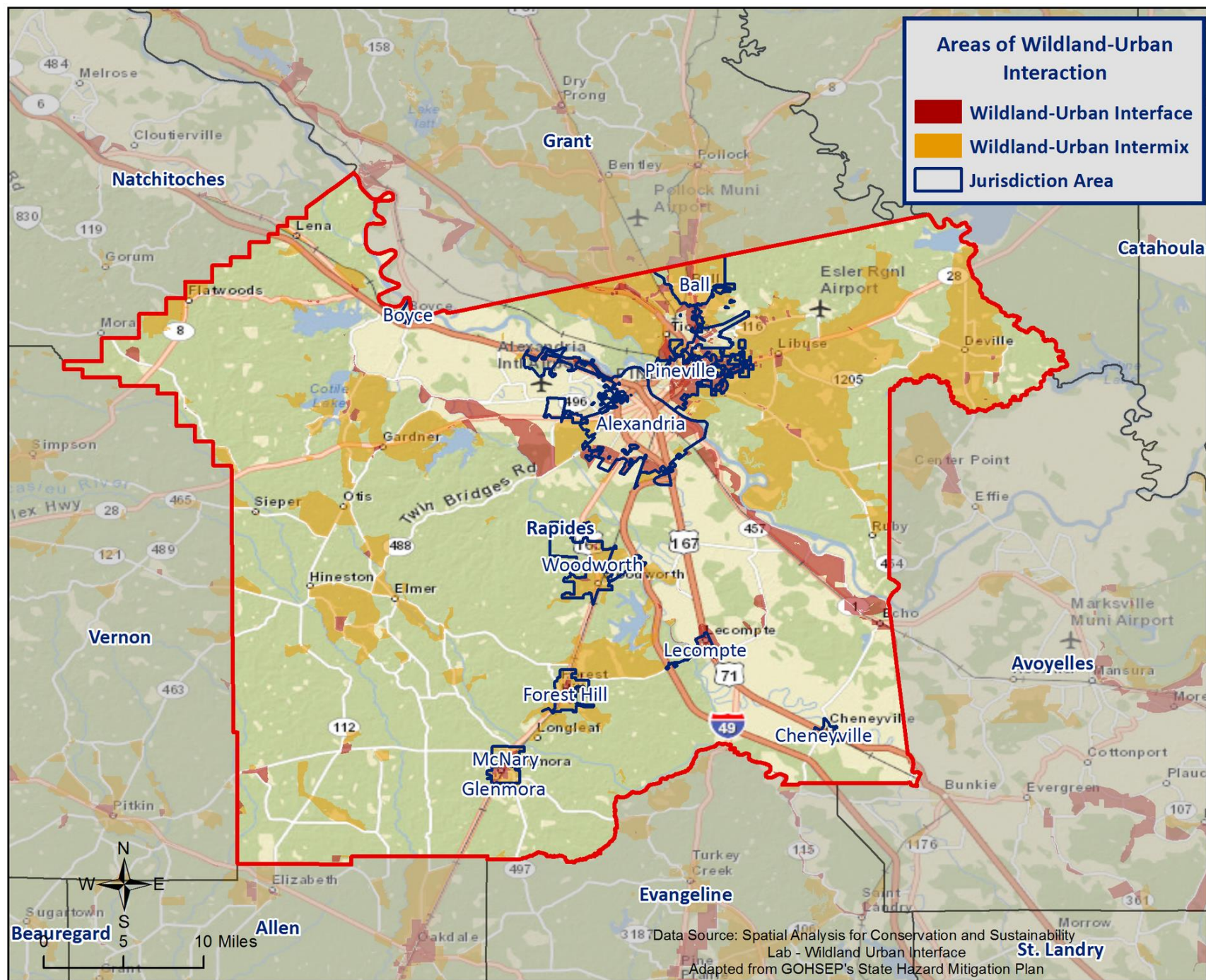


# Wildfire

- A large, destructive fire that spreads quickly over woodland or brush
- Any large fire that spreads rapidly and is hard to extinguish







# Drought

- Drought is when a region receives below-average precipitation, resulting in prolonged shortages in its water supply, whether atmospheric, surface or ground water.
- Drought can last for months or years, or may be declared after as few as 15 days. It can have a substantial impact on the ecosystem and agriculture of the affected region.
- Periods of heat can significantly worsen drought conditions



# U.S. Drought Monitor

## Louisiana

**August 25, 2015**

(Released Thursday, Aug. 27, 2015)

Valid 8 a.m. EDT

*Drought Conditions (Percent Area)*

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
<b>Current</b>	0.10	99.90	59.83	6.91	0.00	0.00
<b>Last Week</b> 8/18/2015	0.02	99.98	54.10	18.54	0.00	0.00
<b>3 Months Ago</b> 5/26/2015	100.00	0.00	0.00	0.00	0.00	0.00
<b>Start of Calendar Year</b> 1/20/2014	47.23	52.77	10.88	0.00	0.00	0.00
<b>Start of Water Year</b> 9/30/2014	88.99	11.01	0.63	0.00	0.00	0.00
<b>One Year Ago</b> 8/26/2014	99.09	0.91	0.00	0.00	0.00	0.00

### Intensity:

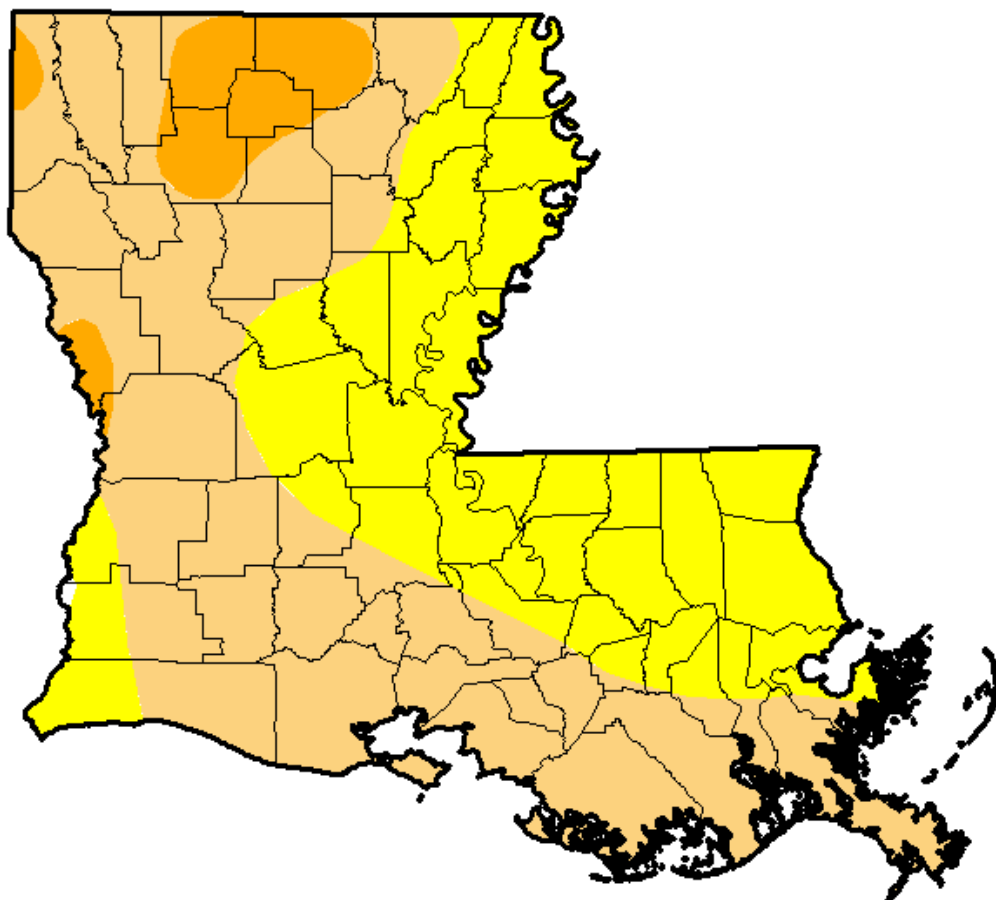
 D0 Abnormally Dry	 D3 Extreme Drought
 D1 Moderate Drought	 D4 Exceptional Drought
 D2 Severe Drought	

*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

### Author:

Anthony Artusa

NOAA/NWS/NCEP/CPC



<http://droughtmonitor.unl.edu/>



# Extreme Heat

- Temperatures that hover 10 degrees or more above the average high temperature for the region and last for several weeks
- Humid or muggy conditions, which add to the discomfort of high temperatures, occur when a “dome” of high atmospheric pressure traps hazy, damp air near the ground



# Winter Weather

- For Louisiana and other parts of the southeastern United States, a severe winter storm occurs when humid air from the Gulf of Mexico meets a cold air mass from the north. As the temperature falls once the cold air mass crosses Louisiana, precipitation may fall in the form of snow or sleet. If the ground temperature is cold enough but air temperature is above freezing, rain can freeze instantly on contact with the surface, causing massive ice storms.
  - Ice storms
  - Freezes
  - Snow events
  - Strong winds
    - Wind-driven snow, drifting, wind chill





# Mitigation Strategy – Parish Goals

- Identify and pursue preventative measures that will reduce future damages from hazards;
- Enhance public awareness and understanding of disaster preparedness;
- Reduce repetitive flood losses in the Parish;
- Facilitate sound development and rebuilding in the Parish so as to reduce or eliminate the potential impacts of hazards



# 2009-2015 Parish HM Project Status

- Director's Comments





# Public Outreach Activities

- Risk Analysis Activity (Hazard Occurrences)
- Problem Area Identification (Parish Maps)
- Survey



# *Contact Us*

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